RETURN WITH BID

1A

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

Letting June 17, 2011

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

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

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

Illinois Department of Transportation
DIVISION OF AERONAUTICS

Contract No. PA051
Chicago Executive Airport
Wheeling/Prospect Heights, Illinois
Cook County
Illinois Project No. PWK-3244
Federal Project No. 3-17-0018-B32

For engineering information, contact Marc Katz of Crawford, Murphy & Tilly, Inc. at (630) 820-1022.

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

PLEASE MARK THE APPROPRIATE BOX BELOW:

☐ A Bid Bond is included.

☐ A Cashier's Check or a Certified Check is included.

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals 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. In addition, this proposal contains new statutory requirements applicable to the use of subcontractors and, in particular, includes the State Required Ethical Standards Governing Subcontractors to be signed and incorporated into all subcontracts.

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. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

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

Illinois Department of Transportation

PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____
   _____

Taxpayer Identification Number (Mandatory) _____a

for the improvement officially known as:

(a) Chicago Executive 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:

Construct Partial Parallel Taxiway Echo & Partial Overlay of Taxiway Echo

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," the "Supplemental Specifications and Recurring Special Provisions," the "Interim Revisions to Supplemental Specifications and Recurring Special Provisions", latest editions located on the IDOT website at http://www.dot.il.gov/aero/airspecs.html, 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 122 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 Charges	
From More Than	To and Including	Calendar Day	Work Day
$ 0	$ 100,000	$ 375	$ 500
100,000	500,000	625	875
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,125	1,550
3,000,000	5,000,000	1,425	1,950
5,000,000	10,000,000	1,700	2,350
10,000,000	And over	3,325	4,650

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, addenda, form of contract and contract bonds, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

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

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

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.

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.

RETURN WITH BID

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

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

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid Dollars	Cents

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

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

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

    Check box Yes ☐
    Check box No ☐

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

    _____

    _____

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

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - PA051

COUNTY NAME	CODE	DIST	AIRPORT NAME	FED PROJECT	ILL PROJECT
COOK	031	01	CHICAGO EXECUTIVE	3-17-0018-B32	PW-K -3244

****** BASE ******

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR108108	1/C #8 5 KV UG CABLE	L.F.	16,000.000			=		
AR109341	20 KW REGULATOR, STYLE 1	EACH	1.000			=		
AR110202	2" PVC DUCT, DIRECT BURY	L.F.	11,110.000			=		
AR110212	2" STEEL DUCT, DIRECT BURY	L.F.	370.000			=		
AR110312	2" STEEL DUCT, JACKED	L.F.	186.000			=		
AR110504	4-WAY CONCRETE ENCASED DUCT	L.F.	240.000			=		
AR110610	ELECTRICAL HANDHOLE	EACH	6.000			=		
AR110906	REMOVE ELECTRICAL HANDHOLE	EACH	5.000			=		
AR125415	MITL-BASE MOUNTED	EACH	120.000			=		
AR125443	TAXI GUIDANCE SIGN, 3 CHARACTER	EACH	1.000			=		
AR125444	TAXI GUIDANCE SIGN, 4 CHARACTER	EACH	10.000			=		
AR125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EACH	2.000			=		
AR125470	MODIFY EXISTING SIGN PANEL	EACH	1.000			=		
AR125510	MIRL, BASE MOUNTED	EACH	1.000			=		
AR125565	SPLICE CAN	EACH	1.000			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR125901	REMOVE STAKE MOUNTED LIGHT	EACH	58.000	X			=		
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	35.000	X			=		
AR125904	REMOVE TAXI GUIDANCE SIGN	EACH	6.000	X			=		
AR125942	ADJUST BASE MOUNTED LIGHT	EACH	17.000	X			=		
AR125964	RELOCATE TAXI GUIDANCE SIGN	EACH	4.000	X			=		
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1.000	X			=		
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	14,195.000	X			=		
AR152540	SOIL STABILIZATION FABRIC	S.Y.	6,515.000	X			=		
AR156510	SILT FENCE	L.F.	6,762.000	X			=		
AR156511	DITCH CHECK	EACH	4.000	X			=		
AR156520	INLET PROTECTION	EACH	28.000	X			=		
AR162506	CLASS E FENCE 6'	L.F.	435.000	X			=		
AR162900	REMOVE CLASS E FENCE	L.F.	506.000	X			=		
AR162905	REMOVE GATE	EACH	1.000	X			=		
AR162908	REMOVE ELECTRIC GATE	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
AR163520	CONSTRUCTION FENCE	L.F.	455.000	X		=		
AR208515	POROUS GRANULAR EMBANKMENT	C.Y.	2,175.000	X		=		
AR209606	CRUSHED AGG. BASE COURSE - 6"	S.Y.	7,515.000	X		=		
AR209608	CRUSHED AGG. BASE COURSE - 8"	S.Y.	1,140.000	X		=		
AR401610	BITUMINOUS SURFACE COURSE	TON	1,740.000	X		=		
AR401620	BIT. SURFACE COURSE, LEVELING	TON	239.000	X		=		
AR401650	BITUMINOUS PAVEMENT MILLING	S.Y.	4,847.000	X		=		
AR401655	BUTT JOINT CONSTRUCTION	S.Y.	2,722.000	X		=		
AR401900	REMOVE BITUMINOUS PAVEMENT	S.Y.	18,087.000	X		=		
AR401910	REMOVE & REPLACE BIT. PAVEMENT	S.Y.	50.000	X		=		
AR403610	BITUMINOUS BASE COURSE	TON	2,275.000	X		=		
AR501510	10" PCC PAVEMENT	S.Y.	5,700.000	X		=		
AR501530	PCC TEST BATCH	EACH	1.000	X		=		
AR501900	REMOVE PCC PAVEMENT	S.Y.	3,092.000	X		=		
AR602510	BITUMINOUS PRIME COAT	GAL.	1,110.000	X		=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR603510	BITUMINOUS TACK COAT	GAL.	3,580.000	X			=		
AR620520	PAVEMENT MARKING-WATERBORNE	S.F.	12,505.000	X			=		
AR620525	PAVEMENT MARKING-BLACK BORDER	S.F.	14,705.000	X			=		
AR620900	PAVEMENT MARKING REMOVAL	S.F.	3,530.000	X			=		
AR701512	12" RCP, CLASS IV	L.F.	518.000	X			=		
AR701515	15" RCP, CLASS IV	L.F.	678.000	X			=		
AR701900	REMOVE PIPE	L.F.	1,629.000	X			=		
AR705526	6" PERFORATED UNDERDRAIN W/SOCK	L.F.	2,140.000	X			=		
AR705900	REMOVE UNDERDRAIN	L.F.	490.000	X			=		
AR751412	INLET-TYPE B	EACH	4.000	X			=		
AR751540	MANHOLE 4'	EACH	7.000	X			=		
AR751900	REMOVE INLET	EACH	2.000	X			=		
AR751903	REMOVE MANHOLE	EACH	8.000	X			=		
AR751940	ADJUST INLET	EACH	4.000	X			=		
AR751943	ADJUST MANHOLE	EACH	5.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR754410	COMB CONCRETE CURB & GUTTER	L.F.	690.000	X			=		
AR760508	8" DUCTILE IRON WATER MAIN	L.F.	50.000	X			=		
AR760724	24" STEEL CASING	L.F.	22.000	X			=		
AR800015	REPLACE BENCHMARK	EACH	1.000	X			=		
AR800026	SLOPE BOX INLET 12"	EACH	4.000	X			=		
AR800053	SOIL GUARD	S.Y.	9,174.000	X			=		
AR800153	CONCRETE WASHOUT	L.S.	1.000	X			=		
AR800154	REMOVE WOODEN TAXI GUIDANCE SIGN	EACH	5.000	X			=		
AR800194	REMOVE ELEVATED RETROREFLECTIVE M	EACH	25.000	X			=		
AR800816	L-804 RGL ELEVATED, BASE MOUNTED	EACH	8.000	X			=		
AR901510	SEEDING	ACRE	10.900	X			=		
AR908510	MULCHING	ACRE	9.000	X			=		
AR910915	REMOVE ROADWAY SIGN	EACH	7.000	X			=		

SUBTOTAL BASE $

***THE DEPARTMENT RESERVES THE RIGHT TO AWARD THIS CONTRACT ON THE
***BASIS OF ANY OF THE ALTERNATES OR COMBINATION THEREOF.

****** ALT 1 ******

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AS401610	BITUMINOUS SURFACE COURSE	TON	480.000	X			=		
AS401655	BUTT JOINT CONSTRUCTION	S.Y.	360.000	X			=		
AS603510	BITUMINOUS TACK COAT	GAL.	615.000	X			=		
AS620520	PAVEMENT MARKING-WATERBORNE	S.F.	2,610.000	X			=		
AS620525	PAVEMENT MARKING-BLACK BORDER	S.F.	3,516.000	X			=		

SUBTOTAL ALT 1 $

****** ALT 2 ******

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AT109362	30 KW REGULATOR, STYLE 2	EACH	1.000	X			=		
AT109630	LIGHTING CONTROL COMPUTER SYSTEM	L.S.	1.000	X			=		
AT800178	FIBER OPTIC CABLE	L.F.	180.000	X			=		

SUBTOTAL ALT 2 $

CONTRACT - PA051

SUMMARY OF TOTAL ALTERNATES		DOLLARS	CTS
TOTAL BASE	$		
TOTAL ALT 1	$		
TOTAL ALT 2	$		

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.

RETURN WITH BID

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

I. GENERAL

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

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

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

II. ASSURANCES

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

A. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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

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

B. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

C. Inducements

1. The Illinois Procurement Code provides:

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

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

D. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

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

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

E. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

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

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

F. Confidentiality

1. The Illinois Procurement Code provides:

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

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

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

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

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

(b) Businesses. No business shall be barred from contracting with any unit of State or local government 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, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

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

F. Educational Loan

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

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

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

G. Bid-Rigging/Bid Rotating

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

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

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

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

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

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

H. International Anti-Boycott

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

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

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

I. Drug Free Workplace

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

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

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

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

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

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

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

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

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

J. Disclosure of Business Operations in Iran

Section 50-36 of the Illinois Procurement Code, 30ILCS 500/50-36 provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

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

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

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

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

Check the appropriate statement:

/____/ Company has no business operations in Iran to disclose.

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

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

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

N/A (Federal)

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

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

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

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

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

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

M. Lobbyist Disclosure

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

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

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

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

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

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

Or

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

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

IV. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.
The current annual salary of the Governor is $177,412.00

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

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

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES _____ NO _____

2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES _____ NO _____

3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES_____ NO_____

4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES _____ NO _____

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

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

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

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

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

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

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

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

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ partnership _____ other: (explain on separate sheet)
% or $ value of ownership/distributable income share: _____

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

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes____ No____

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

_____

_____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes ____ No____

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes____ No____

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

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

1. Is your spouse or any minor children currently an officer or employee of the Capital Development Board or the Illinois State Toll Highway Authority? Yes____ No____

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

   _____

   _____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) and amount in excess of 100% of the annual salary of the Governor? Yes____ No____

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes____ No____

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes____ No____

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter Yes____ No____

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes____ No____

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes____ No____

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes____ No____

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes____ No____

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections Yes____ No____

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

3. Communication Disclosure.

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

Name and address of person(s): _____

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

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

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

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

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____
Signature of Authorized Officer Date

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

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

Yes _____ No _____

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

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

THE FOLLOWING STATEMENT MUST BE CHECKED

☐ _____ _____

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

Contract No. PA051
Chicago Executive Airport
Wheeling/Prospect Heights, Illinois
Cook County
Illinois Project No. PWK-3244
Federal Project No. 3-17-0018-B32

PART I. IDENTIFICATION

Dept. Human Rights #_____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

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

TABLE A

TOTAL Workforce Projection for Contract													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								

FOR DEPARTMENT USE ONLY

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

BC 1256 (Rev. 12/11/07)

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 if revisions are required.

Signature: ☐ _____ Title: _____ Date: _____

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

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

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

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

RETURN WITH BID

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

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

A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.

B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY

(a) Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause? Yes____ No____

(b) If your answer is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? Yes____ No____

C. BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS

(a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program (AIP).

(b) Any and all steel products used in the performance of this contract by the Contractor, subcontractors, producers, and suppliers are required to adhere to the Illinois Steel Products Procurement Act, which requires that all steel items be of 100 percent domestic origin and manufacture. Any products listed under the Federal Aviation Administration's (FAA) nationwide approved list of "Equipment Meeting Buy American Requirements" shall be deemed as meeting the requirements of the Illinois Steel Products Procurement Act.

(c) The successful bidder will be required to assure that only domestic steel and domestically manufactured products will be used by the Contractor, subcontractors, producers, and suppliers in the performance of this contract. The North American Free Trade Agreement (NAFTA) specifically excluded federal grant programs such as the AIP. Therefore, NAFTA does not change the requirement to comply with the Buy American requirement in the Act. Exceptions to this are for products, other than steel, that:

(1) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality;

(2) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest;

(3) the FAA has determined that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent; or

(4) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990,

(i) the cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components of the facility or equipment, and

(ii) final assembly of the facility or equipment has occurred in the United States.

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

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

D. NPDES CERTIFICATION

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

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

The Airport Owner or its Agent will:

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

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

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

4) submit Notice of Termination (NOT) form

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

E. NON-APPROPRIATION CLAUSE

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

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

RETURN WITH BID

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway in Springfield, Illinois until 10:00 o'clock a.m., June 17, 2011. 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:

   Construct Partial Parallel Taxiway Echo & Partial Overlay of Taxiway Echo

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 Chicago Executive Airport administration building. For engineering information, contact Marc Katz of Crawford, Murphy & Tilly, Inc. at (630) 820-1022.

6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 15.0%.

7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports, the Illinois Division of Aeronautics Supplemental Specifications and Recurring Special Provisions, the Special Provisions dated April 22, 2011 and the Construction Plans dated April 22, 2011 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.

10. TERMINATION OF CONTRACT.

1. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.

2. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.

3. If the termination is due to failure to fulfill the Contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

4. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.

5. The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

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 122 calendar days.

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.

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

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

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

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL RELATED FAILURES.

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

Illinois Department of Transportation

DBE Utilization Plan

(1) Policy

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

(2) Obligation

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

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route **Chicago Executive Airport**

Section _____

Project **PWK-3244**

County **Cook County**

Letting Date **June 17, 2011**

Contract No. **PA051**

Letting Item No. **1A**

Total Bid _____

Contract DBE Goal 15.0% (Percent) _____ (Dollar Amount)

(4) Assurance

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

☐ Meets or exceeds contract award goals and has provided documented participation as follows:

Disadvantaged Business Participation _____ percent

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

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

Disadvantaged Business Participation _____ percent

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

_____
Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.

Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.

Bureau of Small Business Enterprises
2300 South Dirksen Parkway
Springfield, Illinois 62764

Local Let Projects
Submit forms to the
Local Agency

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

SBE 2026 (Rev. 11/23/09)

Illinois Department of Transportation

DBE Participation Statement

Subcontractor Registration _____ Letting **June 17, 2011**

Participation Statement Item No. **1A**

(1) Instructions Contract **PA051**

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

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
			Total	

(3) Partial Payment Items
For any of the above items which are partial pay items, specifically describe the work and subcontract dollar amount:

(4) Commitment

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

_____ Signature for Prime Contractor

Title _____

Date _____

Contact _____

Phone _____

Firm Name _____

Address _____

City/State/Zip _____

_____ Signature for DBE Firm

Title _____

Date _____

Contact _____

Phone _____

Firm Name _____

Address _____

City/State/Zip _____

E _____

WC _____

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

SBE 2025 (Rev. 11/03.09)

RETURN WITH BID

Contract No. PA051
Chicago Executive Airport
Wheeling/Prospect Heights, Illinois
Cook County
Illinois Project No. PWK-3244
Federal Project No. 3-17-0018-B32

PROPOSAL SIGNATURE SHEET

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

Firm Name _____

(IF AN INDIVIDUAL) Signature of Owner _____

Business Address _____

_____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP) Business Address _____

_____

Name and Address of All Members of the Firm:

_____ _____

_____ _____

Corporate Name _____

By _____
Signature of Authorized Representative

_____
(IF A CORPORATION) Typed or printed name and title of Authorized Representative

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

Business Address _____

_____

Corporate Name _____

By _____
Signature of Authorized Representative

_____
(IF A JOINT VENTURE) Typed or printed name and title of Authorized Representative

Attest _____
Signature

Business Address _____

_____

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

---

Illinois Department of Transportation

Return with Bid

Division of Aeronautics
Proposal Bid Bond

Sponsor _____ Item No. _____

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

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____

as PRINCIPAL, and _____

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

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

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

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

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

PRINCIPAL

_____
(Company Name)

By _____
(Signature & Title)

SURETY

_____
(Company Name)

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

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

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

_____ and _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

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

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

My commission expires _____ _____
Notary Public

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

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

AER 356B (Rev. 05/07/09)

PROPOSAL ENVELOPE

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

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

NOTICE

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

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

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

Contract No. PA051
Chicago Executive Airport
Wheeling/Prospect Heights, Illinois
Cook County
Illinois Project No. PWK-3244
Federal Project No. 3-17-0018-B32

Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

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

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

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

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

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

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

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

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction.. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

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

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

_____
Name of Subcontracting Company

_____ _____
Authorized Officer Date

RETURN WITH SUBCONTRACT

SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.
The current annual salary of the Governor is $177,412.00.

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

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

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES _____ NO _____

2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES _____ NO_____

3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES _____ NO _____

4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES _____ NO _____

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

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

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

RETURN WITH SUBCONTRACT

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

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

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

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

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

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Communication Disclosure.

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

Name and address of person(s): _____

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

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

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

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

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____
Signature of Authorized Officer Date

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Procurement Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

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

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

THE FOLLOWING STATEMENT MUST BE CHECKED

☐ _____ _____
Signature of Authorized Officer Date

DIVISION OF AERONAUTICS

FEDERAL CONTRACT PROVISIONS

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.

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

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

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

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

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

(1) No Federal appropriated funds have paid or will be paid, by or behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an Officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying”, in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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

TRADE RESTRICTION CLAUSE

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

a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. has not knowingly entered into any contract or subcontract for this project with a Contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

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

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

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

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

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

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

CERTIFICATION OF NONSEGREGATED FACILITIES - 41 CFR PART 60-1.8

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

VETERAN'S PREFERENCE

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

ACCESS TO RECORDS AND REPORTS

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

RIGHTS TO INVENTIONS

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

ENERGY CONSERVATION REQUIREMENTS

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

CLEAN AIR AND WATER POLLUTION CONTROL

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

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

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

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

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

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION

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

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

APPENDIX A

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

AREA COVERED (STATEWIDE)

Goals for Women apply nationwide.

GOAL

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

APPENDIX B

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

Economic Area	Goal (percent)
056 Paducah, KY: Non-SMSA Counties - IL - Hardin, Massac, Pope KY - Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall	5.2
080 Evansville, IN: Non-SMSA Counties - IL - Edwards, Gallatin, Hamilton, Lawrence, Saline, Wabash, White IN - Dubois, Knox, Perry, Pike, Spencer KY - Hancock, Hopkins, McLean, Mublenberg, Ohio, Union, Webster	3.5
081 Terre Haute, IN: Non-SMSA Counties - IL - Clark, Crawford IN - Parke	2.5
083 Chicago, IL: SMSA Counties: 1600 Chicago, IL - IL - Cook, DuPage, Kane, Lake, McHenry, Will	19.6
3740 Kankakee, IL - IL - Kankakee	9.1
Non-SMSA Counties IL - Bureau, DeKalb, Grundy, Iroquois, Kendall, LaSalle, Livingston, Putnam IN - Jasper, Laporte, Newton, Pulaski, Starke	18.4

Economic Area	Goal (percent)
084 Champaign - Urbana, IL:	
SMSA Counties:	
1400 Champaign - Urbana - Rantoul, IL - IL - Champaign	7.8
Non-SMSA Counties - IL - Coles, Cumberland, Douglas, Edgar, Ford, Piatt, Vermilion	4.8
085 Springfield - Decatur, IL:	
SMSA Counties:	
2040 Decatur, IL - IL - Macon	7.6
7880 Springfield, IL - IL - Mendard, Sangamon	4.5
Non-SMSA Counties IL - Cass, Christian, Dewitt, Logan, Morgan, Moultrie, Scott, Shelby	4.0
086 Quincy, IL:	
Non-SMSA Counties	3.1
IL - Adams, Brown, Pike MO - Lewis, Marion, Pike, Ralls	
087 Peoria, IL:	
SMSA Counties:	
1040 Bloomington - Normal, IL - IL - McLean	2.5
6120 Peoria, IL - IL - Peoria, Tazewell, Woodford	4.4
Non-SMSA Counties - IL - Fulton, Knox, McDonough, Marshall, Mason, Schuyler, Stark, Warren	3.3
088 Rockford, IL:	
SMSA Counties:	
6880 Rockford, IL - IL - Boone, Winnebago	6.3
Non-SMSA Counties - IL - Lee, Ogle, Stephenson	4.6
098 Dubuque, IA:	
Non-SMSA Counties - IL - JoDaviess IA - Atlamakee, Clayton, Delaware, Jackson, Winnesheik WI - Crawford, Grant, Lafayette	0.5
099 Davenport, Rock Island, Moline, IA - IL:	
SMSA Counties:	
1960 Davenport, Rock Island, Moline, IA - IL - IL - Henry, Rock Island IA - Scott	4.6
Non-SMSA Counties - IL - Carroll, Hancock, Henderson, Mercer, Whiteside IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine MO - Clark	3.4

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

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

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

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

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

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§26.13) - The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.

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

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

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

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

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

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

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

a. Withholding of payments to the contractor under the contract until the contractor complies, and/or

b. Cancellation, termination, or suspension of the contract, in whole or in part.

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

DAVIS BACON LABOR PROVISIONS

(1) Minimum Wages.

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

(1)The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2)The classification is utilized in the area by the construction industry; and

(3)The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

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

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

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

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

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

(2) Withholding.

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

(3) Payrolls and basic records.

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

records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

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

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

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

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

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

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

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

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

(4) Apprentices and Trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as 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 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by an subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

(7) Contract Termination: Debarment.

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

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

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

(9) Disputes Concerning Labor Standards.

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

(10) Certification of Eligibility.

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

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

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

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

(1) Overtime requirements:

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

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

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

(3) Withholding for Unpaid Wages and Liquidated Damages.

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

(4) Subcontracts.

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

(5) Working Conditions.

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

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

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

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

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

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

4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance: *Provided, however,* that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

EQUAL EMPLOYMENT OPPORTUNITY SPECIFICATION

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

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

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

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such

notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The SF 100 is available at the following address:

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

Phone (202) 663-4968

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

Instructions for Certification

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

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction" "debarred" "suspended" "ineligible" "lower tier covered transaction" "participant" "person" "primary covered transaction" "principal" "proposal" and "voluntarily excluded" as used in this clause have the meaning set out in the Definitions and Coverage sections of the rules implementing Executive Order 12540. You may

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

6. The prospective primary participant agrees by submitting this proposal that should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the department or agency entering into this transaction.

7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Transaction", provided by the department or agency entering into this covered transaction without modification in all lower covered transactions and in all solicitations for lower covered transactions.

8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to check the Nonprocurement List (Tel. #).

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

10. Except for transactions authorized under paragraph 8 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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

1. The prospective primary participant certifies to the best of its knowledge and belief that it and its principals:

   a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by an Federal department or agency;

   b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or Local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction or destruction of records, making false statements, or receiving stolen property;

   c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

   d. Have not within a three-period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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

Appendix B of 49 CFR Part 29

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

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

Instructions for Certification

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

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction, "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

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

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

NOTICE

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

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

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

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

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

ILLINOIS DEPARTMENT OF TRANSPORTATION

DIVISION OF AERONAUTICS

STATE REQUIRED CONTRACT PROVISIONS

The following provisions are 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.

DISADVANTAGED BUSINESS POLICY

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."

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

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

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

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

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

SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
Effective: September 1, 2000
Revised: January 1, 2010

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

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

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

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

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

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR: This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the

work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform **15.0%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

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

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

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

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

(a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The name and address of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

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

(6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURE. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document the good faith efforts of the bidder before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan commits sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR part 26, Appendix A.

The Utilization Plan will not be approved by the Department if the Utilization Plan does not commit sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma*

efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

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

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

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

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

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

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable.

Also, the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

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

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

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

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

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision and that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons why good faith efforts have not been found.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or

before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

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

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

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

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

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

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

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

(e) DBE as a material supplier:

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

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

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

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

(a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen

Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) The Contractor must notify and obtain written approval from the Department's Bureau of Small Business Enterprises prior to replacing a DBE or making any change in the participation of a DBE. Approval for replacement will be granted only if it is demonstrated that the DBE is unable or unwilling to perform. The Contractor must make every good faith effort to find another certified DBE subcontractor to substitute for the original 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 original DBE, to the extent needed to meet the contract goal.

(c) Any deviation from the DBE condition-of-award or contract specifications must be approved, in writing, by the Department. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract.

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

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

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

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

(e) Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted.

(f) If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(g) 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. The Contractor shall notify the Bureau of Small Business Enterprises 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 Bureau of Small Business Enterprises and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau of Small Business Enterprises 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.

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

(i) 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.

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

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.

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

SECTION 2

AWARD AND EXECUTION OF CONTRACT

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

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

(a) If the proposal is irregular as specified in the subsection titled REJECTION OF PROPOSALS of Section 1.

(b) If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 1.

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

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

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

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

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

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

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

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

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

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

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

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

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

1A

PA051

SECTION III

Special Provisions

For

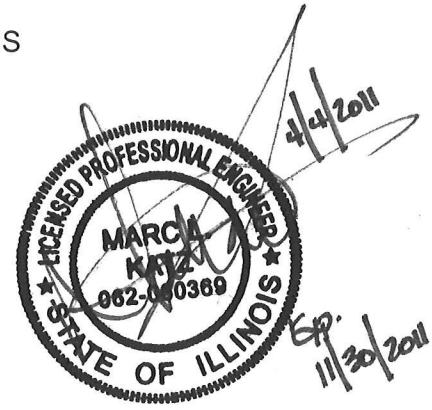
CONSTRUCT PARTIAL PARALLEL TAXIWAY ECHO AND PARTIAL OVERLAY OF TAXIWAY ECHO

ILLINOIS PROJECT: PWK-3244
A.I.P. PROJECT: 3-17-0018-B32

At

CHICAGO EXECUTIVE AIRPORT
WHEELING/PROSPECT HEIGHTS, ILLINOIS

Final Submittal



April 22, 2011

Prepared By:

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08290-08-00

GENERAL

These Special Provisions, together with applicable Standard Specifications, Rules and Regulations, Contract Requirements for Airport Improvement Projects, Payroll Requirements and Minimum Wage Rates which are hereto attached or which by reference are herein incorporated, cover the requirements of the State of Illinois, Department of Transportation, Division of Aeronautics for the construction of the subject project at the Chicago Executive Airport, Wheeling/Prospect Heights, Illinois.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The "Standard Specifications for Construction of Airports (Consolidated Reprint)," dated November 2, 2009, State of Illinois Department of Transportation, Division of Aeronautics shall govern the project except as otherwise noted in these Special Provisions. In cases of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and shall govern. When noted within the Special Provisions, the Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction", Adopted January 1, 2007, shall also apply.

INDEX TO SPECIAL PROVISIONS

IDA POLICY MEMORANDUMS

IDOT STANDARD DRAWINGS

602306-03 Inlet – Type B **(Modified)**
602401-03 Manhole Type A **(Modified)**
602601-02 Precast Reinforced Concrete Flat Slab Top
602701-02 Manhole Steps
604001-03 Frame and Lids, Type 1
604036-02 Grate, Type 8
604051-03 Frame and Grate, Type 11
606001-04 Concrete Curb Type B and Combination Concrete Curb and Gutter

APPENDIX A

National Geodetic Survey – ***Bench Mark Reset Procedures*** (May 2007)

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DIVISION I – GENERAL PROVISIONS

SECTION 10 – DEFINITION OF TERMS

10-23 ENGINEER

DELETE:

Paragraph (b).

SECTION 20 – SCOPE OF WORK

20-05 MAINTENANCE OF TRAFFIC

ADD:

The Contractor shall be responsible for cleaning and maintaining all haul roads and use a pick-up type sweeper on all pavements and adjacent roadways utilized in hauling operations when material is tracked onto said pavement. **The Contractor shall have a sweeper on site and maintain all pavements clear of dirt and debris at all times or as requested by the Resident Engineer**. If the Contractor fails to comply with the Standard Specifications, Contract Plans or these Special Provisions concerning traffic control, the Resident Engineer shall execute such work as may be deemed necessary to correct deficiencies and the cost thereof shall be deducted from compensation due or which may become due the Contractor under the contract. The Contractor shall be responsible for supplying, maintaining and moving all barricades required for construction. The cost thereof shall not be paid for separately, but shall be considered incidental to the contract unit prices.

The Airport Manager, following consultation with the Resident Engineer, will give proper notice to the nearest Flight Service Station and the Airways Facilities Chief of the Federal Aviation Administration prior to the beginning of construction. The Contractor shall furnish a flagger in radio control with the Air Traffic Control Tower at any time the active taxiways or airfield pavement are crossed or used for a haul road. The Contractor shall supply his own radios. The cost thereof shall not be paid for separately, but shall be considered incidental to the contract unit prices.

20-09 AIRPORT OPERATIONS DURING CONSTRUCTION

a. Construction Activity and Aircraft Movements

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

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

b. Limitations On Construction

(1) Open flame welding or torch cutting operations shall be prohibited, unless adequate fire and safety precautions are provided.

(2) Open trenches, excavations and stockpiled material near any pavements shall be prominently marked with red flags and lighted by light units during hours of restricted visibility and/or darkness.

(3) Stockpiled material shall be constrained in a manner to prevent movement resulting from aircraft blast or wind conditions.

(4) The use of explosives shall be prohibited.

(5) Burning shall not be allowed.

c. Debris

Waste and loose material capable of causing damage to aircraft landing gears, propellers, or being ingested in jet engines shall not be placed on active aircraft movement areas. Material tracked on these areas shall be removed continuously during the work project. The Contractor shall provide garbage cans in employee parking areas and storage areas for debris.

SECTION 30 – CONTROL OF WORK

30-10 INSPECTION OF WORK

ADD:

The Contractor shall provide portable flood lighting for nighttime construction. Sufficient units shall be provided so that work areas are illuminated to a level of five horizontal foot candles. The lighting levels shall be calculated and measured in accordance with the current standards of the Illumination Engineering Society. Lights shall be positioned so as not to interfere with Airport operations.

30-12 LOAD RESTRICTIONS

ADD:

Contractor's use of the existing airfield and perimeter pavements by equipment and loaded trucks shall be minimized. **Any damage to existing airfield and perimeter pavements shall be repaired by the Contractor at his own expense to the satisfaction of the Owner. Contractor shall obtain written permission from the Airport Owner to use any airfield pavements.**

The Contractor shall acquaint himself with the load restriction of all local perimeter roadways intended for use as haul roads.

30-18 PLANS AND WORK DRAWINGS

DELETE:

References to “approval” in first paragraph and replace with “review”.

REVISE the fourth paragraph to read:

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

equipment, to contract requirements. Shop drawings shall be full descriptive, complete and of sufficient detail for ready determination of compliance.

REVISE the last paragraph to read:

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

PROJECT LOCATION:	**Chicago Executive Airport**
PROJECT TITLE:	**Construct Partial Parallel Taxiway Echo and Partial Overlay of Taxiway Echo**
PROJECT NUMBERS	**IL Project: PWK-3244** **AIP Project: 3-17-0003-B32**
CONTRACT ITEM:	**(i.e. AR 125415 MITL – Base Mounted)**
SUBMITTED BY:	**(Contractor/Subcontractor Name)**
DATE:	**(Date Submitted)**

SECTION 40 – CONTROL OF MATERIALS

40-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

ADD: After the last paragraph

The Contractor shall certify all materials contained in the contract. Certification documentation shall be submitted to the Engineer. It shall be the sole responsibility of the Contractor to ensure the delivery of adequate and accurate documentation prior to the delivery of the materials.

If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard and Special Provisions, the pay item shall not be included on the Construction Progress Payment report until such submittals have been furnished.

40-03 CERTIFICATION OF COMPLIANCE

ADD:

Additional requirements are specified in Section 40-11 Certification of Materials.

40-11 CERTIFICATION OF MATERIALS

ADD:

The Contractor shall certify all materials incorporated into the contract. Certification documentation shall be submitted to the Resident Engineer. It shall be the **sole** responsibility of the Contractor to ensure the submittal of adequate and accurate documentation in order to satisfy the contract material certification

requirements **prior** to the delivery of the materials. Materials without certification or those with certification that demonstrates the materials do not meet the requirements of the plans and specifications shall be considered nonconforming and subject to the provisions of Section 30-02.

As a guide to the certification process and requirements, the Contractor shall use the Illinois Department of Transportation/Division of Aeronautics MANUAL FOR DOCUMENTATION OF AIRPORT MATERIALS dated April 1, 2010 or latest edition including any addendums. Copies of this manual are available by contacting Mr. Mike Wilhelm-Division of Aeronautics at (217) 785-4282 or from their website at http://www.dot.state.il.us/aero/PDF/2010%20Man%20for%20Doc%20of%20Air%20Matls%20revision.pdf.

The cost of providing the required material documentation and certifications shall not be paid for separately, but shall be considered incidental to the associated item.

SECTION 50 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

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

ADD:

Special care shall be taken on all operations and particularly near pavement edges to avoid damage to edge lights and all underground electrical cable on the airport. The approximate location of existing underground cable is shown on drawings. Any airfield lights or cable that are broken and require replacement because of the Contractor's operations will be replaced by the contractor at his own expense.

Any airfield cable repairs or replacement to any part of the electrical system made necessary by the Contractor's operations will be made by him in the manner specified in Sections 108 and 125 at no cost to the airport. Cost of replacement to be borne by the Contractor shall include any expense incurred in locating as well as repairing or replacing damaged parts of the system by the owning agency.

It shall be the Contractor's responsibility to locate and protect all airport-owned utilities within the construction limits. This includes all electrical cables, storm sewer, drain tile, sanitary sewer and water main.

Special attention is necessary when working near FAA power and control cables. Any FAA utility that is damaged or cut during construction shall be repaired immediately. FAA requires that any damaged cable be replaced in its entirety, no splices will be permitted. No additional compensation will be made for replacement or repair of FAA facilities or cables but, shall be incidental to the contract.

Should any utilities or cables require location, the following people shall be contacted:

Utility Service or Facility	**Contact (Person)**	**Contact (Phone)**
AT&T, Commonwealth Edison & NICOR Gas	J.U.L.I.E. (Joint Utility Locating Information for Excavators)	811 **OR** 1-800-892-0123
FAA Control and Communication Cables	FAA Sector Field Office	(630) 587-7801
City of Prospect Heights Water, Sanitary and Storm Sewer	Operations and Maintenance City of Prospect Heights	(847) 459-0588
Illinois American Water Company - Water, Sanitary and Storm Sewer	Supervisor of Construction	(630) 739-8810
Village of Wheeling Water, Sanitary and Storm Sewer	Operations and Maintenance	(847) 459-2985
Metropolitan Water Reclamation District of Greater Chicago	Field Office Personnel	(708) 588-4055
Miscellaneous Communication Cables	Signature Flight Group Al Palicki Atlantic Aviation David Kaufman	(847) 537-1200 (847) 808-0812

SECTION 60 – PROSECUTION AND PROGRESS

60-03 NOTICE TO PROCEED

ADD:

The Notice to Proceed will not be given until all materials are certified by the Contractor to be available and on hand.

60-05 LIMITATION OF OPERATIONS

ADD:

The Contractor shall not have access to any part of the active airfield (runways or taxiways) for any equipment or personnel without approval of the Airport Manager.

60-07 TEMPORARY SUSPENSION OF THE WORK

REVISE the second paragraph to read:

In the event that the Contractor is ordered by the Engineer to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Resident Engineer within the time period stated in the

Engineer's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Resident Engineer will forward the Contractor's claim to the Division for the consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspension made at the request of the Engineer, or for any other delay provided for in the contract, plans, or specifications.

60-10 DEFAULT AND TERMINATION OF CONTRACT

DELETE: “and his/her surety” from the first sentence.

Replace references to “Project Engineer” with “Engineer” throughout this section.

SECTION 70 – MEASUREMENT AND PAYMENT

70-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK

ADD the following to subsection B.7. Statements:

All statements of the cost of force account work shall be furnished to the Engineer not later than 60 days after completion of the force account work. If the statement is not received within the specified time frame, all demands for payment for the extra work are waived and the Division, Airport Owner and Local Sponsor are released from any and all such demands. It is the responsibility of the Contractor to ensure that all statements are received within the specified time regardless of the manner or method of delivery.

DIVISION II – PAVING CONSTRUCTION DETAILS

ITEM 150510 – ENGINEER'S FIELD OFFICE

150-2.1

REVISE:

Paragraph (G) to the following:

(G) One (1) electric water cooler dispenser capable of dispensing cold and hot water and a supply of water bottles as needed.

Paragraph (I) to the following:

(I) One (1) dry process copy machine with automatic feeding capabilities (including maintenance and operating supplies) capable of both collating and reproducing prints up to a half size (11"X 17") and capable of copying field books.

ADD:

(N) One first-aid cabinet fully equipped.
(O) One (1) 800 Watt, 0.8 cubic foot microwave oven.
(P) One (1) Coffee Maker
(Q) Solid waste disposal consisting of two (2) 28-quart waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

BASIS OF PAYMENT

150-3.1

DELETE the second sentence of the second paragraph of this section.

Payment will be made under:

ITEM AR150510 ENGINEER'S FIELD OFFICE – PER LUMP SUM.

ITEM 152000 – EXCAVATION AND EMBANKMENT

DESCRIPTION

152-1.1

ADD:

All excess excavation material shall be hauled offsite at no additional cost to the contract.

152-1.2 CLASSIFICATION

DELETE the second, third and fourth paragraphs.

CONSTRUCTION METHODS

152-2.2 EXCAVATION

REVISE: The 8th paragraph of this section to read:

In cut areas, not requiring porous granular embankment, the top 8" of subgrade shall be compacted to a density of not less than the percentage of the maximum dry density, at optimum moisture, shown in Table 1 as determined by the compaction control tests cited in Division VII for ASTM D-1557 (Modified Proctor) for aircraft weights of 60,000 pounds or more. In cut areas, where abandoned utilities, including duct bank, gas pipe lines, fuel lines, water mains and sewer pipe are encountered, the utilities shall be removed. The cost of removal shall be considered incidental unless it is specifically called out for removal on the plan sheets.

In cut areas, requiring the use of porous granular embankment, the proposed subgrade shall be compacted to the satisfaction of the Engineer.

152-2.10 TOPSOIL

DELETE: The 5th paragraph of this section and REPLACE with:

Any excess excavation material shall be hauled offsite at no additional cost to the contract.

152-2.15 DUST CONTROL WATERING

ADD:

This work shall consist exclusively of the control resulting from construction operations and is not intended for use in the compaction of earth embankment.

Dust shall be controlled by the uniform application of sprinkled water and shall be applied as directed by the Resident Engineer, in a manner meeting his approval.

Dust control watering shall not be paid for separately, but shall be considered incidental to the contract.

METHOD OF MEASUREMENT

152-3.2

DELETE: This section.

152-3.3

DELETE: This section.

BASIS OF PAYMENT

152-4.3

DELETE: This section.

152-4.4

DELETE: This section.

ADD to **152-4.2:**

Topsoil placement, shoulder fill and embankment fill shall not be paid for separately, but shall be included in the unit bid price for "Unclassified Excavation".

Removal of existing electrical cable, electrical duct bank or conduit, sewer, water main or fuel lines when in conflict with excavation shall not be paid for separately, unless specifically called out for on the plans, but shall be considered incidental to "Unclassified Excavation".

Payment will be made under:

ITEM AR152410 UNCLASSIFIED EXCAVATION – PER CUBIC YARD.

ITEM 152540 – SOIL STABILIZATION FABRIC

BASIS OF PAYMENT

152-5.1

ADD:

Payment will be made under:

ITEM AR152540 SOIL STABILIZATION FABRIC – PER SQUARE YARD.

ITEM 156000 – EROSION CONTROL

DESCRIPTION

156-1.1

ADD:

All entrances to the construction site shall have a stabilized entrance constructed in accordance with Standard IL-630 of the Natural Resources Conservation Service and the current Illinois Urban Manual.

CONSTRUCTION METHODS

156-3.9 INLET PROTECTION

Inlet filter sediment traps shall be placed in all proposed and existing inlets and catch basins as shown on the plans, or as directed by the Engineer.

156-3.10

In the event that temporary erosion and pollution control measures are ordered by the Engineer due to the Contractor's negligence or carelessness, the work shall be performed by the Contractor at no additional cost to the Owner.

METHOD OF MEASUREMENT

156-4.2

DELETE: This section.

156-4.3

REVISE: This section to read:

Temporary Seeding and Temporary Mulching shall not be measured for payment, but shall be considered incidental to Item 156 – Erosion Control.

156-4.4

ADD:

The number of Inlet Protection paid for shall be the number shown in the plans or ordered by the Resident Engineer used to control erosion and satisfactorily completed.

156-4.5

ADD:

The number of Ditch Check paid for shall be the number shown in the plans or ordered by the Resident Engineer used to control erosion and satisfactorily completed.

BASIS OF PAYMENT

156-5.1

REVISE: This section to read:

Payment will be made at the contract unit price per linear foot of Silt Fence, and at the contract unit price per each for Inlet Protection and per each for Ditch Check. This price shall be full compensation for furnishing all materials for all preparation and installation of these materials, including excavation, placement, tie-down stakes, staples, maintenance and removal and for all labor, equipment, tools, and incidentals necessary to complete this item.

Stabilized construction entrances, temporary seeding and temporary mulching shall not be measured for payment. It shall be considered incidental to Item 156 – Erosion Control.

Payment will be made under:

ITEM AR156510 SILT FENCE – PER LINEAR FOOT.
ITEM AR156511 DITCH CHECK – PER EACH.
ITEM AR156520 INLET PROTECTION – PER EACH.

ITEM 208515 – POROUS GRANULAR EMBANKMENT

DESCRIPTION

208-1.1

ADD:

This work shall consist of furnishing and placing porous granular embankment as the field conditions warrant at the time of construction as directed by the Engineer.

MATERIALS

208-2.1 UNCRUSHED COARSE AGGREGATE

DELETE: This Entire section.

208.2-3 GRADATION

DELETE: This Entire section.

ADD:
When submitting materials for consideration, the Contractor shall provide written certification that the material meets the specified requirements. A written gradation shall also be furnished.

Gradation for Porous Granular Embankment shall be as follows:

Sieve	Percent Passing
3 inch	100
2 ½ inch	90-100
2 inch	45-75
1 ½ inch	0-30
1 inch	0-6
IDOT Gradation	**CA-1**

CONSTRUCTION REQUIREMENTS

208-3.2 PREPARING UNDERLYING COURSE

DELETE: This Entire section.

208-3.3 METHODS OF PRODUCTION

DELETE: This Entire section.

208-3.4 PLACING

DELETE: This Entire section.

ADD: Paragraph (D)

The porous granular embankment shall be placed in lifts no greater than one (1) foot thick or as directed by the Engineer. Rolling the top of this replacement material with a vibratory roller meeting the requirements of Section 1101 of the IDOT *Standard Specification for Road and Bridge Construction* should be sufficient to obtain the desired keying or interlock and necessary compaction. The Engineer shall verify that adequate keying has been obtained.

208-3.5 FINISHING AND COMPACTING

DELETE: Fifth sentence, first paragraph.

ADD:

The base shall be compacted to the satisfaction of the Engineer.

Capping aggregate will not be required when embankment meeting the requirements of Section 209 of the Standard Specifications or granular subbase is placed on top of the porous granular embankment. Capping aggregate (two (2) inch depth) meeting the requirements of Section 209 of the Standard Specifications will be required when embankment meeting the requirements of Section 152 of the Standard Specifications is placed on top of the porous granular embankment.

DELETE: Second paragraph.

DELETE: Second sentence, third paragraph and REPLACE with:

When the rolling develops irregularities that exceed 3/8 inch when tested using an acceptable method, the irregular surface shall be loosened, refilled with the same kind of material as that used in constructing the course, and rolled again as required.

METHOD OF MEASUREMENT

208-4.2

DELETE: This Entire Section.

ADD:

The quantity of Porous Granular Embankment shall be the number of cubic yards as measured by the Engineer at the specified thickness of the material placed. If required, the thickness of PGE measured for payment will include the thickness of the capping stone.

The porous granular embankment shall be used as shown and as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities.

The Contractor shall furnish approved duplicate load tickets upon which is recorded the net weight of the aggregates in each truck. The Contractor shall submit one (1) load ticket to the Resident Engineer, or his/her duly authorized representative, at the job site when the truck load is incorporated into the base.

BASIS OF PAYMENT

208-5.1

DELETE: Entire Section.

ADD:

Payment for porous granular embankment shall be paid for at the contract unit price per cubic yard, of which price shall be full compensation for the two (2) inch capping stone (if necessary), furnishing, spreading, compacting, watering and all incidentals related to equipment, labor and tools necessary to complete this work.

Payment will be made under:

ITEM AR208515 POROUS GRANULAR EMBANKMENT – PER CUBIC YARD.

ITEM 209 – CRUSHED AGGREGATE BASE COURSE

MATERIALS

209-2.3 GRADATION

DELETE: Gradation "C" in Table 1.

CONSTRUCTION METHODS

209-3.4 FINISHING AND COMPACTING

ADD:

The base shall be compacted to not less than 100% of maximum density at optimum moisture as determined by compaction control tests specified in Division VII for aircraft with gross weights of 60,000 lbs and more (Modified Proctor ASTM D1557).

The Contractor shall submit copies of all density test results for each lift to the Resident Engineer prior to acceptance testing.

DELETE: Second sentence, third paragraph and REPLACE with:

When the rolling develops irregularities that exceed 3/8 inch when tested using an acceptable method, the irregular surface shall be loosened, refilled with the same kind of material as that used in constructing the course, and rolled again as required.

BASIS OF PAYMENT

209-5.1

ADD:

Payment will be made under:

ITEM AR209606 CRUSHED AGG. BASE COURSE – 6" – PER SQUARE YARD.
ITEM AR209608 CRUSHED AGG. BASE COURSE – 8" – PER SQUARE YARD.

ITEM 401610 – BITUMINOUS SURFACE COURSE - METHOD 1

DESCRIPTION

401-1.1

ADD:

This item shall also consist of bituminous surface leveling course as shown in the plans or as directed by the Engineer.

COMPOSITION

401-3.2 JOB MIX FORMULA (JMF)

REVISE: Table 1 to read as follows:

TABLE 1 MARSHALL DESIGN CRITERIA

	OVER 60,000 lb.
Number of Blows	75
Stability (Min.)	1800
Flow	8-16
Percent Air Void	1.5-4.0
Voids Filled With Asphalt (%)	75 - 90

CONSTRUCTION METHODS

401-4.12 JOINTS

ADD the following as the sixth paragraph of this section:

If at any time during the surface course paving operation, it becomes necessary to end a paving lane at a location other than the new finished pavement edge because of ending a day's paving, machinery breakdown, etc., the lane end will be sawed back a sufficient distance to provide a smooth, neat appearing joint from which to resume paving. The sawed face will be painted with a tack coat and this work shall be considered incidental to Item 401, Bituminous Surface Course, and no additional compensation will be allowed.

401-4.14 SHAPING EDGES

Add the following as the second paragraph for 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.

401-4.15 ACCEPTANCE TESTING OF HMA MIXES FOR DENSITY

ADD:
Bituminous Surface Leveling Course shall be accepted as follows:

After the completion of compaction, the pavement will be tested and accepted on the basis of percent air voids in the final compacted mat. The Bituminous Surface Leveling Course shall be compacted to a minimum density of 93 percent (7 percent air voids) of the Maximum Theoretical Specific Gravity (ASTM D-2041). If, during construction, the density test falls below 93 percent, additional approved rollers shall be required.

Two random nuclear density tests shall be taken for each 500 tons of mix placed. Each nuclear density test shall be the average of five (5) nuclear tests taken as a cross-section of the pavement. One random mix sample shall be taken from each 1,000 tons of mix laid for Marshall, Extraction, Maximum Specific Gravity and Air Void tests. The Contractor shall have a nuclear gauge and qualified operator on the project when constructing this item.

BASIS OF PAYMENT

401-6.1

Payment will be made under:

ITEM AR401610	**BITUMINOUS SURFACE COURSE – PER TON.**
ITEM AS401610	**BITUMINOUS SURFACE COURSE – PER TON.**
ITEM AR401620	**BIT. SURFACE COURSE, LEVELING – PER TON.**

ITEM 401650 – HMA PAVEMENT MILLING

CONSTRUCTION METHODS

401-3.1

ADD:

The existing pavement areas to be milled shall be done in such a manner as to prevent damage to the adjacent structures and pavement. All edges adjacent to existing pavements shall be saw-cut full depth prior to removal as directed by the Engineer.

The Contractor shall use caution and exercise care to avoid damage to the existing subgrade by the bituminous milling operations. Excessive construction traffic on the open subgrade areas shall be avoided in the removal areas and any damage or undercutting necessary to repair failed subgrade areas shall be repaired and the cost of the repairs shall be considered incidental the Bituminous Pavement Milling item.

BASIS OF PAYMENT

401-5.1

ADD:

Payment will be made under:

ITEM AR401650 BITUMINOUS PAVEMENT MILLING – PER SQUARE YARD.

ITEM 401655 – BUTT JOINT CONSTRUCTION

BASIS OF PAYMENT

401-5.1

ADD:

Payment will be made under:

ITEM AR401655 BUTT JOINT CONSTRUCTION – PER SQUARE YARD.
ITEM AS401655 BUTT JOINT CONSTRUCTION – PER SQUARE YARD.

ITEM 401900 – REMOVE HMA PAVEMENT

DESCRIPTION

401-1.1

ADD: To the second sentence.

The types of materials to be removed consist of bituminous pavement (4"-10" ± thick). Pavement structure information was taken from airport records, data supplied by airport personnel and soil borings. The Contractor shall verify the type and thickness of material to be removed. **No extra compensation will be allowed for any variations in the pavement sections actually encountered.**

CONSTRUCTION METHODS

401-2.1

ADD:

Any damage to the pavement beyond the limits as shown on the plans shall be removed and replaced by the Contractor at his expense. These areas shall be saw cut to a uniform width.

METHOD OF MEASUREMENT

401-3.1

ADD:

If pavement or subgrade material is removed due to negligence on the part of the Contractor, the additional quantity of pavement removal and replacement of subgrade material will not be measured for payment.

BASIS OF PAYMENT

401-5.1

ADD:

Any grading and recompacting of existing granular base course to proper grade shall not be paid for separately but shall be considered incidental to REMOVE BITUMINOUS PAVEMENT.

Any leveling aggregate required to obtain the proper subgrade elevation in areas of bituminous pavement removal shall be considered incidental to HMA pavement removal.

Payment will be made under:

ITEM AR401900 REMOVE BITUMINOUS PAVEMENT – PER SQUARE YARD.

ITEM 401910 – REMOVE AND REPLACE HMA PAVEMENT

DESCRIPTION

401-1.1

This item shall consist of bituminous pavement removal and replacement for patches as shown on the plans or as directed by the Engineer. The pavement shall be compacted in accordance with these specifications and shall conform to the lines, grades, thicknesses and typical sections as shown on the plans or as directed by the Resident Engineer.

Each course shall be constructed to the depth, section or elevation required to match the existing pavement structure and shall be rolled, finished and approved prior to the placement of the next course.

MATERIALS

401910-2.1 BITUMINOUS SURFACE COURSE

The bituminous surface course shall conform to the specifications of Section 401.

401910-2.2 BITUMINOUS BASE COURSE

The bituminous base course shall conform to the specifications of Section 403.

401910-2.3 BITUMINOUS PRIME COAT

The bituminous prime coat shall conform to the specifications of Section 602.

401910-2.4 BITUMINOUS TACK COAT

The bituminous tack coat shall conform to the specifications of Section 603.

CONSTRUCTION METHODS

401910-3.1

The types of materials to be removed consist of bituminous pavement (4”-10” +/- thick). Pavement structure information was taken from airport records, data supplied by airport personnel and pavement cores. The Contractor shall verify the type and thickness of material to be removed. **No extra compensation will be allowed for any variations in the pavement sections actually encountered.**

401910-3.2

The proposed pavement replacement section shall be as specified herein. Prime coat shall be applied to the aggregate base. Tack coat shall be applied between each lift of asphalt and on all vertical faces of the patch area.

401910-3.3

The existing pavement areas to be removed shall be done in such a manner as to prevent damage to the adjacent pavements. All edges adjacent to existing pavements shall be saw-cut full depth prior to removal, as directed by the Resident Engineer.

401910-3.4

Pavement replacement will be as detailed on the plans and constructed in accordance to the applicable Sections 401, 403, 602 & 603. The various materials required for pavement replacement shall be in accordance with the applicable portions of the Standard Specifications and these Special Provisions. Any damage to pavement beyond the limits as shown on the plans **shall be removed and replaced by the Contractor at his expense. These areas shall be saw cut to a uniform width.**

401910-3.5

Pavement Removal and Replacement shall be the removal of the existing pavements as shown on the plans and the replacement pavement shall match the existing pavement thickness. The replacement pavement shall consist of bituminous base course conforming to the specifications of Section 403, matching the existing pavement bituminous base course thickness, with 2" bituminous surface course conforming to the specifications of Section 401 placed as the final lift. The maximum lift thickness shall be 3". For full-depth patching, the existing aggregate base course shall be re-graded and compacted prior to the placement of the bituminous course. Cost of regarding and compacting to the existing base shall be incidental to the pavement removal and replacement.

METHOD OF MEASUREMENT

401910-4.1

The area of pavement removal and replacement shall be measured by the number of square yards, satisfactorily removed, replaced and disposed of as shown on the plans or as directed by the Resident Engineer.

401910-4.2

If additional pavement or subgrade material is removed due to negligence on the part of the Contractor, the additional quantity of pavement removal and replacement of subgrade material will not be measured for payment.

401910-4.3

The bituminous base and surface course, bituminous prime coat and bituminous tack coat will not be measured separately for payment, but will be considered incidental to REMOVE & REPLACE BIT. PAVEMENT, per square yard.

BASIS OF PAYMENT

401910-5.1

Payment for REMOVE & REPLACE HMA PAVEMENT shall be made at the contract unit price per square yard. This price shall include full compensation for sawing, removal, disposal, replacement of asphalt materials, compaction, prime coat, tack coat, including furnishing all materials, labor, tools, equipment and incidentals necessary to complete this item of work.

Any grading and recompacting of existing granular base course to proper grade shall not be paid for separately but shall be considered incidental to Remove & Replace HMA Pavement.

Payment will be made under:

ITEM AR401910 REMOVE & REPLACE BIT. PAVEMENT– PER SQUARE YARD.

ITEM 403610 – BITUMINOUS BASE COURSE – METHOD I

MATERIALS

403-3.2 JOB MIX FORMULA (JMF)

Revise Table 1 to read as follows:

TABLE 1 MARSHALL DESIGN CRITERIA

	Over 60,000 lb.
Number of Blows	75
Stability (Min.)	1800
Flow	8 – 16
Percent Air Void	1.5 – 4.0
Voids Filled With Asphalt (%)	75 – 90

CONSTRUCTION METHODS

403-4.11 JOINTS

Add the following paragraph to this section:

At any time during the base course paving operation it becomes necessary to end a paving lane at a location other than the proposed finished pavement edge because of ending a day's paving, machinery breakdown, etc.; the lane end will be sawed back a sufficient distance to provide a smooth, neat appearing joint from which to resume paving. The sawed face will be painted with a tack coat and this work shall be considered incidental to Item 403 Bituminous Base Course, and no additional compensation will be allowed.

403-4.12 SHAPING EDGES

ADD:

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

403-6.1

Payment will be made under:

ITEM AR403610 BITUMINOUS BASE COURSE – PER TON.

ITEM 501 – PORTLAND CEMENT CONCRETE PAVEMENT - MEHTOD II

MATERIALS

501-2.4 PREMOLDED JOINT FILLER

REWRITE the first sentence to read:

Premolded joint filler for expansion joints shall be a flexible foam expansion joint composed of isomeric polymers in a very small, closed cell structure and shall meet the requirements of ASTM D-1752, Sections 5.1 through 5.4, with the compression requirement modified to 10 psi (7.03 g/mm^2) minimum and 25 psi (17.58 g/mm^2) maximum. Expansion joint shall be Ceramar by W.R. Meadows, or approved equivalent.

501-2.6 STEEL REINFORCEMENT

DELETE: This Section.

ADD:

Reinforcement bars required at fillets and structures shall be deformed steel bar Grade 40 or 60 conforming to ASTM A-615 or ASTM A-616. Reinforcement bars designated as ASTM A-615 can be used for construction requiring bent bars. Reinforcement bars designated as ASTM A-616 can only be used if they are straight.

Reinforcement of odd-shaped panels, if required by the Engineer in the field, shall be panels of welded wire fabric of the size and dimensions shown in the plans conforming to ASTM A-185.

501-2.7 DOWEL AND TIE BARS

ADD:

All dowel bars shall be fastened firmly in position with an approved contraction joint dowel bar assembly prior to the start of paving operations or mechanically inserted per article 420.05 of the IDOT Standard Specifications for Road and Bridge Construction. Loose dowel bars will not be accepted.

Contraction Joint Assembly. The contraction joint assembly shall be an approved welded assembly possessing the rigidity to hold the dowels during the placing and compacting of the concrete to the degree of alignment specified hereinafter. The assembly shall have 4 parallel spacer bars and 2 subgrade-bearing members. An upright support at each end of dowel shall be welded to both the outside spacer bar and the bearing member at appropriate points to hold the dowels at the design height. The two inside spacer bars shall be spaced approximately 2 inches on each side of center.

The dowels shall be spaced as shown on the plans and alternate ends shall be welded to the outside spacer bars. One weld is permitted per bar. The end of each dowel not welded to a spacer bar shall be securely held in place by means of wire loops or metal tubes welded to the other outside spacer bar. Suitable ties shall be provided to hold the assembly in normal position during shipping, handling and installation. Wire sized shall not be less than W7 for the outside spacer bars, bearing members and upright supports and W5 wire for the 2 inside spacer bars. The tie wires used for securing the spacer bars shall not be less than W3 wires.

The assembly shall be provided with 2 continuous bearing plates of not less than 2-inch width and not less than 0.0359 inches thickness sheet steel. The bearing plates shall be attached by welding to the subgrade members or by suitable clips and shall be punched to receive the protruding ends of the upright supports and stakes. The stakes shall be driven parallel to and next to the upright supports. The

subgrade bearing members may be omitted if suitable subgrade plates are shop welded to the assembly and provide equivalent rigidity. Bearing plates will not be required on stabilized subbase.
The welds in the assembly shall be securely made. A broken weld will be sufficient cause for rejection of the length or section of the assembly in which it occurs.

501-2.9 COVER MATERIAL FOR CURING

DELETE: (b), (c) and (d).

REVISE: (a) as follows:

Curing materials shall be liquid membrane-forming compounds conforming to the requirements of ASTM C-309, Type 2 (White Pigmented).

CONSTRUCTION METHODS

501-3.1 EQUIPMENT

501-3.1(e) FORMS

ADD:

All radii and tapers shall be formed with flexible forms.

501-3.2 FORM SETTING

ADD:

In the event that the pavement is constructed utilizing the formed paving technique, the paving lane forms supported by the subbase shall be anchored by steel pins. No formed areas shall be poured until the Engineer has checked and accepted the formwork for both alignment and elevation.

501-3.3 CONDITIONING OF UNDERLYING COURSE, SLIP-FORM CONSTRUCTION

DELETE: The first sentence.

ADD:

The existing grade along the outer edges of the new pavement shall be improved, if necessary, to support the paver without noticeable displacement. Any grading, compacting, or furnishing and installing materials shall be considered incidental to the unit prices for paving and no separate payment will be made.

All areas shall be constructed true to grade and acceptable to the Engineer prior to paving.

During placement of the concrete pavement, the subbase shall be maintained in a moist condition without accumulation of pools of water.

In the event that the underlying course has become over-saturated or unstable, paving operations shall stop until corrected unless otherwise approved by the Engineer.

501-3.4 CONDITIONING OF UNDERLYING COURSE, SIDE-FORM CONSTRUCTION

ADD:

All areas shall be constructed true to grade and acceptable to the Engineer prior to paving.

During placement of the concrete pavement, the subbase shall be maintained in a moist condition without accumulation of pools of water.

In the event that the underlying course has become over-saturated or unstable, paving operations shall stop until corrected unless otherwise approved by the Engineer.

501-3.6(a) PROPORTIONS

DELETE: This section.

501-3.7 FIELD TEST SPECIMENS

ADD:

The Contractor shall provide a system of marking and tracking samples taken in the field. The system shall be provided at the Preconstruction conference and shall, at a minimum, provide location of sample, lot number and curing and reporting of all test specimens manufactured by the Contractor's personnel.

The Contractor shall provide the forms or molds used to make compressive test cylinders or flexural beam specimens.

501-3.12 JOINTS

ADD: To the end of the paragraph (B) Installation:

Protection of previously sawed joints from slip-form operations shall be provided in the form of rubber mats or other means acceptable to the Engineer. The Contractor shall be required to place rubber mats (or other approved material) along the pavement edge prior to drilling dowel bar holes. In addition, any damage to the pavement caused by the drilling operation shall be repaired to the satisfaction of the Engineer at no additional cost to the contract.

501-3.14 SURFACE TEXTURE

ADD:

The surface of the pavement shall be finished with a burlap drag or other approved method acceptable to the Engineer.

501-3.17 CURING

(a) **Impervious Membrane Method** shall be utilized for this project.

ADD:

For slip-form paving, the approved curing media shall be applied uniformly to all surfaces of the pavement, including exposed edges. Membrane curing compounds shall be applied on all concrete surfaces from a suitable self-propelled mechanical application device, which bridges the fresh concrete, designed to provide a uniform application. Other curing systems will not be permitted.

Care shall be taken when this method of curing is used. Should conditions prevail such that curing material is being blown toward buildings or aircraft, appropriate measures shall be taken to eliminate the problems to the satisfaction of the Engineer. Two (2) separate applications, applied at least five minutes apart, each at the rate of not less than 1 gallon per 250 square feet will be required upon surfaces and edges of the concrete. Another application shall be necessary to cover any deficient areas less than 1 gallon per 125 square feet. The curing membrane shall be sprayed as soon as possible without damage to

the pavement surface. Excessive delays in application of the membrane resulting in shrinkage cracking will be cause for rejection of the affected pavement necessitating removal

501-3.24 TEST SECTION FOR SLIP-FORM PAVERS

Prior to paving using the slip-form paving method, an area of the new pavements designated by the Engineer shall be paved to develop and demonstrate satisfactory procedures and concrete mix. The test section shall be located within the new pavement limits and all costs associated with the test section shall be incidental to this item.

501-3.25 GRADE CONTROL FOR SLIP-FORM PAVERS

Grade control on all free edges of slip-form pavement shall be from string lines. The use of transverse grade control from the paver will not be permitted.

501-3.26 PROTECTION OF PAVEMENT AGAINST RAIN

In order that the concrete may be properly protected against the effects of rain before the concrete is sufficiently hardened, the Contractor will be required to have available at all times materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of standard metal forms or wood plank having a nominal thickness of the pavement at its edge for the protection of the pavement edges, and covering material such as curing paper or polyethylene sheeting material for the protection of the surface of the pavement. The metal forms, wood planks and curing paper shall be kept on trucks or towable vehicles, within reasonable hauling distance, at a site shown on the plans, or as designated by the Engineer. Or, as an alternate, rolled polyethylene sheeting of sufficient length and width may be used without the temporary side forms and if properly anchored, to cover the plastic concrete slab and exposed edge. The sheeting may be mounted on either the paver or a separate moveable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering. All pavement damaged shall be removed and replaced at no additional cost to the contract.

501-3.27 REMOVAL OF DEFECTIVE WORK

At locations determined by the Engineer, the contractor shall be required to remove any pavement or sidewalk which is classified as defective. This includes any area where non-controlled (random) cracking occurs, unacceptable surface texturing or any other defect determined unacceptable by the Engineer. The pavement shall be removed to the nearest joint and replaced at the expense of the contractor. Prior to replacement, dowels and tie bars will be provided as directed by the Engineer.

BASIS OF PAYMENT

501-5.1 GENERAL

ADD:

Payment will be made under:

ITEM AR501510 10" PCC PAVEMENT – PER SQUARE YARD.
ITEM AR501530 PCC TEST BATCH – PER EACH.

ITEM 501900 – REMOVE PCC PAVEMENT

MATERIALS

501-2.1

ADD:

The types of materials to be removed consist of P.C.C. pavement (10" ± thick). Pavement structure information was taken from airport records, data supplied by airport personnel and soil borings. The Contractor shall verify the type and thickness of materials to be removed. **No extra compensation will be allowed for any variations in the pavement sections actually encountered.**

CONSTRUCTION METHODS

501-3.1 GENERAL

ADD:

The existing pavement areas to be removed shall be done in such a manner as to prevent damage to the adjacent structures and pavement. All pavement and base material removed shall be disposed of off the airport property. All edges adjacent to existing pavements shall be saw cut full depth prior to removal as directed by the Engineer.

METHOD OF MEASUREMENT

501-4.1

ADD:

The area of pavement removal shall be measured by the number of square yards of pavement removed, and properly disposed, as shown on the plans or as directed by the Engineer.

If additional pavement or subgrade material is removed due to negligence of the Contractor, the additional quality of pavement removal and replacement will not be measured for payment.

BASIS OF PAYMENT

501-5.1

ADD:

Payment shall constitute full compensation for pavement removal, sawcutting and disposal of the removed materials, including all labor, tools, equipment and incidentals necessary to complete this item of work. Any work grading and recompacting of existing granular base course to proper grade shall not be paid for separately but shall be considered incidental to pavement removal.

Payment will be made under:

ITEM AR501900 REMOVE PCC PAVEMENT – PER SQUARE YARD.

ITEM 602 – BITUMINOUS PRIME COAT

CONSTRUCTION METHODS

602-3.3 APPLICATION OF BITUMINOUS MATERIAL

Add the following to the second paragraph:

Areas worn from hauling operations shall be re-primed at no additional cost to the Contract.

BASIS OF PAYMENT

602-5.1

ADD:

Payment will be made under:

ITEM AR602510 BITUMINOUS PRIME COAT – PER GALLON.

ITEM 603 – BITUMINOUS TACK COAT

CONSTRUCTION METHODS

603-3.3 APPLICATION OF BITUMINOUS MATERIAL

Add the following to the second paragraph:

Areas worn from hauling operations shall be re-tacked at no additional cost to the Contract.

BASIS OF PAYMENT

603-5.1

ADD:

Payment will be made under:

ITEM AR603510 BITUMINOUS TACK COAT – PER GALLON.
ITEM AS603510 BITUMINOUS TACK COAT – PER GALLON.

ITEM 605 – SILICONE JOINT SEALING FILLER

CONSTRUCTION METHODS

605-3.4 PLACING JOINT SEALER

ADD:

The joint sealant shall be applied in a continuous operation to properly fill and seal the joint to the dimension shown in the plans. The sealant shall be applied such that it is slightly concave approximately ¼" to ½" below the pavement surface.

The sealant shall be applied in a continuous operation, pumped directly from the original container using an approved mechanical device that will force the sealant to the top of the backer rod and completely fill the joint without spilling the material on the surface of the pavement, and shall adhere to the concrete (Portland Cement Concrete and/or Bituminous Concrete as the case may be) and shall be free of voids. The gun grade sealant shall be tooled, forcing it against the joint faces with an appropriate tool, to produce a slightly concave surface approximately ¼" below the pavement surface. Tooling shall be accomplished before a skin forms on the surface, usually within 10 minutes of application. Sealant which does not bond to the concrete (Portland Cement Concrete and/or Bituminous Concrete as the case may be) surface of the joint walls, contains voids, or fails to set to a tack-free condition will be rejected and replaced by the Contractor at no additional cost. During the course of the work any batches that do not have good consistency for application shall be replaced. Excess sealant on the pavement surface shall be immediately removed.

Traffic shall be restricted from the pavement for a minimum of three hours or as specified by the joint seal manufacturer. In the event that the preformed longitudinal joint seal is cut to allow the installation of the continuous preformed transverse joint seal, the joint intersection shall be sealed to prevent the intrusion of surface water.

METHOD OF MEASUREMENT

605-4.1

DELETE: Entire Paragraph and REPLACE with:

The joint sawing and sealing for the proposed PCC Pavement shall be incidental to Item 501. No separate measurement for payment will be made for this item.

BASIS OF PAYMENT

605-5.1

DELETE: Entire Paragraph and REPLACE with:

Payment for joint sealing in the new PCC Pavement shall be incidental to Item 501.

ITEM 620000 – PAVEMENT MARKING

MATERIALS

620-2.2 PAINT

ADD:

All paint shall be waterborne.

Red and Green Paint shall conform to Federal Specification TT-P-1952D, Type 1.

"The paint shall contain no lead, chromium, cadmium or barium."

METHOD OF MEASUREMENT

620-4.1

ADD:

The quantity of permanent markings to be paid for shall be the number of square feet of painting with the specified material **measured only once to apply two coats** in conformance with the specifications and accepted by the Engineer. Quantities will not be distinguished between red, white, green and yellow colors of paint.

BASIS OF PAYMENT

ADD:

Payment will be made under:

ITEM AR620520	**PAVEMENT MARKING – WATERBORNE – PER SQUARE FOOT.**
ITEM AS620520	**PAVEMENT MARKING – WATERBORNE – PER SQUARE FOOT.**
ITEM AR620525	**PAVEMENT MARKING – BLACK BORDER – PER SQUARE FOOT.**
ITEM AS620525	**PAVEMENT MARKING – BLACK BORDER – PER SQUARE FOOT.**
ITEM AR620900	**PAVEMENT MARKING REMOVAL – PER SQUARE FOOT.**

DIVISION III - FENCING

ITEM 162 – CHAIN LINK FENCE

MATERIALS

162-2.1 FABRIC

ADD:

The chain link fence shall be zinc coated steel fabric or aluminum coated steel fabric.

162-2.2 BARBED WIRE

DELETE: Entire Section. No barbed wire required.

162-2.3 FENCE POSTS, POST TOPS AND EXTENSIONS, RAIL, GATES, BRACES, STRETCHER BARS AND CLIPS

ADD:

Line Posts. The line posts shall be Type A, Type B or roll formed per IDOT Standard 664001-02.

Terminal Posts (End, Corner, or Pull). The terminal post shall be Type A, Type B or roll formed per IDOT Standard 664001-02.

Gate Posts. The gate posts shall be Type A or Type B. Gate posts shall have a nominal O.D. of 4" and weigh at least 7.58 pounds per foot for Type A or 5.707 pounds per foot for Type B.

Top Rail. The fence shall have a continuous top rail for its full length consisting of Type A, Type B or roll formed horizontal braces per IDOT Standard 664001-02. The top rail shall be fitted with couplings or swedged for connecting the lengths into a continuous run. The couplings shall not be less than 6 inches long, and shall allow for expansion and contraction of the rail.

Post Braces. Post braces shall be provided for each gate, corner, pull and end post and shall meet the requirements for top tails.

Post Tops. Post tops shall consist of ornamental tops provided with a hole suitable for through passage of the top rail. The post tops shall fit over the outside of the posts and shall exclude moisture from inside the posts.

162-2.5 WIRE TIES AND TENSION WIRE

ADD:

Coiled spring tension wire of at least 7-gauge O.D. galvanized steel wire shall be stretched along the bottom of the fence and securely fastened to the fabric with hog rings at 2 foot intervals. Fabric ties shall not be less than a 9-gauge galvanized steel wire.

162-2.10 SIGNS

ADD:

Sign panels shall be placed on all new fencing. The signs shall be placed at 100 foot intervals. The sign shall be red letters on white background with a red border and shall read 'RESTRICTED/AREA/KEEP OUT (three separate lines). The letters shall be a minimum of 2 ½" in height. The sign materials shall conform to Type 1 sign panels as specified in Section 720 of the IDOT "Standard Specifications for Road and Bridge Construction".

CONSTRUCTION METHODS

162-3.11 FENCE AND GATE REMOVAL

ADD:

The Contractor shall remove, without regard to height, the existing fence, rails, posts, foundations, miscellaneous hardware and gates as shown on the plans. The removed fence materials shall be disposed of off Airport property unless the Airport wishes to retain portions of the removed fence materials in which the Contractor shall haul salvageable fence pieces to the Airport maintenance yard. The resultant void from the removal of fence foundations or posts in turf areas shall be backfilled with compacted topsoil (hand tamped) and graded to match existing/proposed grades. Any ruts resulting from these operations shall be filled and graded smooth. No additional compensation will be made for the disposal of the non-salvageable fence materials or the filling of foundation/post holes or ruts.

METHOD OF MEASUREMENT

162-4.6

ADD:

Payment will be made at the contract unit price per each for electric gate removal. This price shall be full compensation for removing the gates, posts, hardware, foundations, drivers and chains and for filing of all post and foundation voids, for all transporting and disposal costs and for all labor, equipment, tools and all incidentals necessary to complete this item.

Sign panels shall not be paid for separately but shall be incidental to the proposed fence and gate.

BASIS OF PAYMENT

162-5.6

ADD:

Payment will be made at the contract unit price per each Electric Gate Removal. This price shall be full compensation for removing the gates, posts, hardware, foundations, drivers and chains and for filing of all post and foundation voids, for all transporting and disposal costs and for all labor, equipment, tools and all incidentals necessary to complete this item.

Payment will be made under:

ITEM AR162506	**CLASS E FENCE 6' – PER LINEAR FOOT.**
ITEM AR162900	**REMOVE CLASS E FENCE – PER LINEAR FOOT.**
ITEM AR162905	**REMOVE GATE – PER EACH.**
ITEM AR162908	**REMOVE ELECTRIC GATE – PER EACH.**

DIVISION IV – DRAINAGE

ITEM 701 – PIPE FOR STORM SEWERS AND CULVERTS

MATERIALS

701-2.1 GENERAL

DELETE: Entire Section.

ADD:

Pipe shall be of the type and diameter indicated and installed at the locations shown on the plans. Pipe for storm sewers shall be concrete storm sewer pipe Class III and IV reinforced concrete conforming to ASTM C-76 as called out on the plans.

CONSTRUCTION METHODS

701-3.2 CRADLE

REPLACE all references to “Item 208-2.3” with “Item 208-2.2” in this section.

701-3.3 LAYING AND INSTALLING PIPE

ADD:

When sewer installation requires tapping into an existing manhole, the hole shall be cored to allow for appropriate pipe sizing. The work shall be considered incidental to the installation of the pipe.

701-3.10 PIPE REMOVAL

ADD:

Pipe removal under proposed pavement areas shall be backfilled per Section 701-3.5. Openings due to pipe removals at existing drainage structures to remain shall be patched with brick and mortar as directed by the Engineer.

701-3.12 FARM FIELD TILES

ADD:

All farm field tiles encountered during the construction must be protected, replaced, or connected to the proposed storm sewers and culverts, as directed by the Engineer. Protection, replacement, and connection of farm field tiles will not be measured for payment, but shall be considered incidental to the associated item.

BASIS OF PAYMENT

701-5.1

ADD:

Payment will be made under:

ITEM AR701512 12" RCP, CLASS IV – PER LINEAR FOOT.
ITEM AR701515 15" RCP, CLASS IV – PER LINEAR FOOT.
ITEM AR701900 REMOVE PIPE – PER LINEAR FOOT.

ITEM 705 – PIPE UNDERDRAINS FOR AIRPORTS

MATERIALS

705-2.13 FILTER FABRIC ENVELOPES FOR PERFORATED (PE) TUBING

ADD:

Materials

(a) An IDOT-approved filter fabric sock may be submitted for approval by the Engineer.

705-2.15 UNDERDRAIN TRENCH ENVELOPE

ADD:

Geotechnical fabric for UD trench lining shall consist of woven or nonwoven filaments of polypropylene, polyester, or polyethylene. Nonwoven fabric may be needle punched, heat-bonded, resin-bonded or combinations thereof. The filaments must be dimensionally stable (i.e., filaments must maintain their relative position with respect to each other) and resistant to delamination. The filaments must be free from any chemical treatment or coating that might significantly reduce porosity and permeability.

(a) Physical Properties. The fabric shall comply with the following physical properties:

Weight oz./sq. yd (g/m^2)	3.5 (120) min.	ASTM D 3776
Grab tensile strength lbs. (N)	100 (450 1/) min. 1/	ASTM D 4632
Grab elongation @ break (%)	20 min. 1/	ASTM D 4632
Equivalent opening size (EOS NO.)		CW-02215-77 Corps of Engineers
Nonwoven	30 (600 μm) min 2/	
Woven	50 (300 μm) min 2/	

1/ For woven fabric, test results shall be referenced to orientation with warp or fill, whichever the case may be. Both woven and nonwoven fabrics shall be tested wet.
2/ Manufacturer's certification of fabric to meet requirements.

CONSTRUCTION METHODS

705-3.3 LAYING AND INSTALLING PIPE

REVISE this section to read:

Corrugated polyethylene tubing underdrain shall be constructed as follows:

Trenches shall be excavated to the dimensions and grades required by the plans or as directed by the Engineer.

Trenches shall be lined with the underdrain trench envelope prior to placing any stone or underdrain. A 2-foot minimum lap of material is required where breaks in the fabric occur. Prior to installing the pipe, a 4" layer of porous backfill meeting the requirements of Paragraph 2.5 shall be constructed in the bottom of the trench.

Perforated, corrugated polyethylene tubing with filter fabric sock shall be seated in the porous backfill and held firmly in place, while porous backfill meeting the requirements of Paragraph 2.5 is placed to a height of 5 inches ± 1 inch above the tubing. After the first lift is compacted to the satisfaction of the Engineer, the remainder of the backfill shall be placed and compacted. The underdrain trench envelope is then folded over the backfilled trench and weighted down with 1" to 2" of porous backfill.

Perforated, corrugated polyethylene tubing shall be laid true to grade and shall not be stretched more than 5% during installation.

The Contractor shall be required to establish control grade on the underdrain pipe to ensure the pipe is installed at the proper elevation. Contract grade elevations are to be provided to the resident engineer upon request.

705-3.6 BACKFILLING

ADD:

Backfilling material for voids left by underdrain removal under proposed pavement areas shall consist of IDOT CA-6 material compacted to 95% of the maximum density in accordance with ASTM D-698 (Standard Proctor). This cost shall be considered incidental to the associated pay item.

705-3.10 UNDERDRAIN REMOVAL

ADD:

This work shall consist of removal of existing underdrain pipes of various types and sizes and existing underdrain collection structures. Trenches resulting from underdrain removal shall be backfilled and compacted in accordance with Section 701-3.5 for areas under proposed pavements. Pipe and cleanouts shall be disposed of off airport property

705-3.11 HANDLING AND STORAGE

ADD:

The subsurface drain shall be shipped in a black protective wrapping to eliminate potential fabric deterioration due to prolonged exposure to sunlight.

METHOD OF MEASUREMENT

705-4.1

ADD as the last sentence of the first paragraph:

The footage of underdrain removal to be paid for shall be the number of linear feet of underdrain satisfactorily removed and disposed of off airport property, measured along the centerline of the pipe from removal limits.

BASIS OF PAYMENT

705-5.1

ADD as the last sentence of the first paragraph:

The underdrain trench envelope shall be considered incidental to the underdrain and shall not be measured for payment purposes.

DELETE the fourth paragraph and REPLACE with:

The contract unit price per linear foot for underdrain pipe removal shall be full payment for furnishing all materials, and for all excavation, earth backfill, select granular backfill placement, compaction, and for all labor, equipment and tools necessary to complete this item to the satisfaction of the Engineer.

Payment will be made under:

ITEM AR705526 6" PERFORATED UNDERDRAIN W/ SOCK – PER LINEAR FOOT.
ITEM AR705900 REMOVE UNDERDRAIN – PER LINEAR FOOT.

ITEM 751 – MANHOLES, CATCH BASINS, INLETS & INSPECTION HOLES

DESCRIPTION

751-1.1

ADD:

Specifically, this item consists of the construction, removal, adjustment and reconstruction of manholes as shown on the plans or as directed by the Engineer.

Type B Inlets shall conform to IDOT Standard 602306-03 as modified. Manholes with 4' diameters shall conform to IDOT Standard 602401-03 as modified. Manholes shall also conform to IDOT Standard 602601-02 and 602701-02.

Adjustment of existing manhole shall be raising or lowering of an existing manhole rim to a height no greater than 24". Reconstruction of an existing manhole shall be the raising or lowering of a rim grade of more than 24".

CONSTRUCTION METHODS

751-3.1 UNCLASSIFIED EXCAVATION

ADD:

(f) DEWATERING – The Contractor shall, at all times, provide and maintain in operation pumping and/or well point equipment for the complete dewatering of the excavation. No structure shall be permitted to be constructed in an excavated area in which any amount of water flows or is pooled.

751-3.11 MANHOLE ADJUSTMENT

ADD:

All adjustments are to be made with precast rings. All adjusting rings must be mortared together and must be mortared to the casting, as well as to the cone section or flat top of the structure. The maximum height of adjusting rings shall be eight (8) inches including existing rings for any inlet or manhole adjustment. The maximum number of rings in any structure is three. This may require the Contractor to remove existing rings and replace with larger rings.

The Contractor shall be responsible for field checking existing storm sewer, sanitary sewer, and electrical manhole configurations for the necessary adjustments.

BASIS OF PAYMENT

751-5.1

ADD:

Payment will be made under:

ITEM AR751412	**INLET – TYPE B – PER EACH.**
ITEM AR751540	**MANHOLE 4' – PER EACH.**
ITEM AR751900	**REMOVE INLET – PER EACH.**
ITEM AR751903	**REMOVE MANHOLE – PER EACH.**
ITEM AR751940	**ADJUST INLET – PER EACH.**
ITEM AR751943	**ADJUST MANHOLE – PER EACH.**

ITEM 752 – CONCRETE CULVERTS, HEADWALLS AND MISCELLANEOUS DRAINAGE STRUCTURES

MATERIALS

752-2.2 SLOPE BOX INLETS

ADD:

The slope box inlets shall conform to the details and dimensions on the plans and specified herein.

The materials used for the grating shall comply with the applicable provisions and recommendations of the following ANSI MBG532 and ASTM A36. The grating shall be Heavy Duty Welded Steel 30-W-4 by Ohio Gratings, Inc. or approved equal. The bearing bars are to be 3" x 3/8" rectangular bars spaced 1-7/8" center to center. The cross bars are to be 1" x ¼" and spaced at 4" centers and welded at right angles to bearing bars with one fillet at each bearing bar/cross bar intersection. The surface of the grating is to be plain. The grating shall be capable of carrying a 4,825 pound concentrated loading per foot of grating width. The grating shall have a galvanized finish.

BASIS OF PAYMENT

752-5.1

ADD:

Payment will be made under:

ITEM AR800026 SLOPE BOX INLET 12" – PER EACH.

ITEM 754 – CONCRETE GUTTERS, DITCHES AND FLUMES

MATERIALS

754-2.4

ADD:

Combination curb and gutter shall comply with IDOT, Standard 606001-04, B-6.12.

BASIS OF PAYMENT

754-5.1

Payment will be made under:

ITEM AR754410 COMB. CONCRETE CURB & GUTTER – PER LINEAR FOOT.

DIVISION V – TURFING

ITEM 901000 – SEEDING

MATERIALS

901-2.1 SEED

DELETE: The seed mix table.

ADD:

The seed mixture shall be as follows:

SEEDING CLASS 2 – ROADSIDE MIXTURE

SEEDS	POUNDS PER ACRE
Alta Fescue	100
Perennial Ryegrass	50
Creeping Red Fescue	40
Red Top	10
TOTAL	200

Alternate seed mixtures may be submitted to the Engineer for consideration.

901-2.2 LIME

DELETE: Entire Section

901-2.3 FERTILIZER

REVISE last paragraph to read as follows:

Fertilizer shall be applied at rates that supply the following amounts of nutrients per acre to the distributed areas of seeding:

NUTRIENTS	POUNDS PER ACRE
Nitrogen	90
Phosphorus (P205)	90
Potassium (K20)	90
TOTAL	270

CONSTRUCTION METHODS

901-3.2 DRY APPLICATION METHOD

DELETE: Entire Section

ADD:

(a) Description: This work shall consist of furnishing, transporting and installing all seeds, plant or other materials required for:

1. Any remedial operations in conformance with the plans as specified in these special provisions or as directed by the Engineer.

(b) General Requirements: The site will be in the following condition:
1. The grade will be shaped to the elevation shown on the plans.
2. The topsoil will be free of clods, stones, roots, sticks, rivulets, gullies, crusting, caking and have a soil particle size of no larger than 1".

(c) Seeding Equipment: Seeding equipment shall meet the following requirements. Any other equipment deemed necessary shall be subject to the approval of the Engineer.

1. Disc: Any disc new for the use shall be in a good state of repair with sound, unbroken blades. The disc shall be weighted if necessary to achieve the required tillage depth.
2. No-Till Planters and Drills: Rangeland type drills and no-till planters shall be designed specifically for the seeding of native grasses and forbs with depth control bands set at 1/4" - 1/8".
3. Seedbed Preparation: Seedbed preparation methods shall be approved by the Engineer. Cultivation shall be accomplished at such a time that seeding may occur immediately and without delay. No seeds shall be sown until the Seedbed has been approved by the Engineer.

(d) Seeding Methods: The Contractor shall submit for approval by the Engineer and schedule for seeding and/or planting at least two weeks prior to the scheduled commencement of work. Broadcast seeders will not be allowed. Seeder will be a drill type planter. The Engineer shall examine and then approve any equipment to be used. Prior to starting work, all seeding equipment shall be calibrated and adjusted to sow seeds at the proper seeding rate. Equipment shall be operated in a manner to insure complete coverage of the entire area to be seeded. The Engineer shall be notified forty-eight (48) hours prior to beginning the seeding operations. Any gaps between areas of growth greater than eight square feet shall be resown and/or replanted.

1. No-till or Drill Method: Rolling of the Seedbed will not be required with the use of rangeland type grass drill or no-till planters.

901-3.3 WET APPLICATION METHOD

DELETE: Entire Section.

METHOD OF MEASUREMENT

901-4.1

ADD:

Areas of seeding not showing a uniform stand of grass in density and color shall not be approved for payment. Such areas shall be reseeded to the Owner's satisfaction at the Contractor's cost.

BASIS OF PAYMENT

901-5.1

ADD:

Payment will be made under:

ITEM AR901510 SEEDING – PER ACRE.

ITEM 908 – MULCHING

DESCRIPTION

908-2.1 MULCH MATERIAL

REVISE: First sentence to read:

Material used for mulching shall be (g) Manufactured Hydraulic Mulch.

BASIS OF PAYMENT

908-5.1

ADD:

Payment will be made under:

ITEM AR908510 MULCHING – PER ACRE.

DIVISION VI – LIGHTING INSTALLATION

ITEM 108 – INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

EQUIPMENT AND MATERIALS

108-2.2 GENERAL

ADD:

Airfield Lighting cable under this item shall be:

- L-824, 1/C #8 5,000 V, Type C, in duct and conduit

108-2.4 CABLE CONNECTIONS

DELETE: The first and second sentence of paragraph **D. The Taped or Heat-Shrinked Splice**.

ADD:

To further reduce the possibility of water (moisture) entrance into the connector between the cables and the field-attached connector, heat shrinkable tubing with interior adhesive shall be applied over all cable connections.

The heat shrinkable tubing shall cover the entire L-823 connector. All connections shall be at manholes, handholes, splice cans or light bases. **No direct burial splicing will be allowed.**

No splices will be allowed in the new cable. Cable shall be continuous between pull points. Any repairs necessary to cable damaged during installation shall be done at the Contractor's expense and shall consist of replacing the entire length of damaged cable between pull points.

In line connections for existing cables to be spliced or those that are cut during construction shall be repaired with the cast splice kit. The Contractor shall have a minimum of five (5) splice kits on the jobsite at all times for emergency repairs. Splice markers shall be installed over each splice in cables not to be abandoned. Cast splice kits shall be as specified in paragraph (a). All field splices shall be covered with a flexible polyolefin heat-shrinkable sleeve.

CONSTRUCTION METHODS

108-3.1 GENERAL

ADD:

Any damages to existing utilities as a result of the Contractor's operations shall be repaired immediately.

108-3.2 INSTALLATION IN CONDUIT

ADD:

The Contractor shall install 2" PVC conduit in trench between lights.

The Contractor shall coordinate the cable trenching, placement and backfilling operations so that the cable will not be damaged by (a) the use of mechanized road building equipment in the area where underground cable is or will be in existence, and (b) stone or other foreign materials falling into the trench or mixing into the trench backfill materials.

108-3.3 TRENCHING

REVISE 24" to 30" in the last sentence of the second paragraph.

ADD:

The installation of PVC or GRS conduit using the plowing in method shall not be acceptable.

108-3.5 SPLICING

DELETE: The first and second paragraph of Section **D. Taped or Heat-Shrinked Splices**.

ADD:

Contractor shall use cast splicing kits as described in Article 108-2.4 for any splices made inside the electric handholes. The cast splicing kit shall be series 82-B1 Scotch cast or 90-B1 Scotch cast as manufactured by 3M or equal. Contractor shall provide shop drawing for splicing method and cast splicing kit. Contractor shall also leave minimum 30" of slack on each side of the cable being spliced.

Splicing of FAA cables shall be tested and approved by FAA.

108-3.10 LOCATING OF EXISTING CABLES

ADD:

Contact Personnel are listed in Section 50-17 herein.

All airport owned cables shall be located by the Contractor.

108-3.11 TERMINATIONS AND CONNECTIONS

REVISE: In paragraph 3, the number of splice kits required on site from two (2) to five (5).

ADD:

If, due to the length of spool ordered by the Contractor, it is necessary to install additional handholes, the Contractor shall supply same at no additional cost to the project. The handhole shall be the size as directed by the Engineer.

METHOD OF MEASUREMENT

108-4.1

DELETE: This Section.

108-4.2

REVISE: This Section to read as follows.

The length of 1/C #8 5KV UG cable installed in the existing duct bank /conduit or cable installed in the proposed PVC conduit to be paid for, shall be the number of lineal feet measured in place, completed and ready for operation, and accepted as satisfactory, and no extra quantity will be allotted for any vertical distances or the required cable slack, as stated under Item 108-3.3, in the Standard Specifications. There will be a separate measurement made for each cable installed in conduit.

The cost of routing the cable through duct, splicing, marking, trenching, backfilling, and all connections shall be included in the unit price bid for the cable.

BASIS OF PAYMENT

108-5.1

REVISE: This Section to read as follows:

The cables measured under Item 108-4.2 shall be paid for under this item. These prices shall be full compensation for furnishing all materials and for all preparation and installation of these materials, trenching, backfilling and compacting trenches, all connections, line marking tape and installation, and for all labor, equipment, tools and incidentals necessary to complete these items. The line marking tape installed shall be considered incidental to the work and shall not be paid for separately.

Payment will be made under:

ITEM AR108108 1/C #8 5KV UG CABLE – PER LINEAR FOOT.

ITEM 109 – INSTALLATION OF AIRPORT TRANSFORMERS AND VAULT EQUIPMENT

DESCRIPTION

109-1.1

DELETE: This Section.

ADD:

The Contractor shall furnish all equipment, materials and labor necessary to furnish the proposed electrical vault equipment shown in the plans or as specified herein.

This item shall include the proposed 20 KW regulator, 30 KW regulator, circuit breakers and cabling to provide a complete and operational system. Additionally, this item shall include the installation of the complete proposed L-890 Airfield Lighting Control and Monitoring System (ALCMS). Any parts and labor required by the Contractor to make these changes shall be incidental to this item.

This work shall include all conduits, unistruts, cabling, circuit breakers and labeling required for the complete and operational ALCMS and also required for cabling used in connection of new equipment at the locations and to the dimensions shown on the Plans or approved by the Engineer.

Work shall include any painting of equipment and conduit, the marking and labeling of equipment and the labeling or tagging of wires, testing of the installation, and the furnishing of all incidentals necessary to place it in operating condition as a complete unit to the satisfaction of the Engineer.

This item shall also consist of furnishing and installing vault equipment, complete and ready to operate. Included under the item INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT are the following major components of work:

Installation of L-890 Airfield Lighting Control and Monitoring System (ALCMS).

Installation of one (1) new 20 KW, 3-step L-828 regulator.

Installation of one (1) new 30 KW, 5-step L-828 regulator.

Installation of 480V circuit breaker.

Removal of existing regulators as shown on the plans.

All cable/conduits shown on the plans.

EQUIPMENT AND MATERIALS

109-2.18 FAA-APPROVED EQUIPMENT

ADD:

The following FAA approved equipment is to be used on this project:

A) L-828, Dry Type, Constant Current Regulator, 20KW, 480V, single phase primary, 6.6 AMP maximum, 3 Step Brightness secondary.

B) L-828, Dry Type, Constant Current Regulator, 30KW, 480V, single phase primary, 6.6 AMP maximum, 5 Step Brightness secondary.
C) L-890, Airfield Lighting Control and Monitoring System (ALCMS).

All new regulators shall conform to the following:

Regulator output current shall be adjustable without interruption. Regulator shall be a self-contained unit of the static type with no moving parts requiring attention or service. Internal input fusing shall be provided. Positive open circuit and over current protection in the event of a fault shall be provided. Input and output lightning arresters shall be included. Power factor capacitor shall be provided and provide a power factor of 90% or better, at full load and maximum brightness. All controls, including brightness relays, shall be in the air-filled control cabinet. Local control voltage shall be internally generated and shall be 120 VAC. Regulator shall also permit remote control from an external 120 VAC source. Regulator shall be equipped with internally mounted remote control operated primary contactor with 120 VAC operating coil. Regulators shall be Ferro Resonant (FR) controlled type. Silicon Controlled Rectifier (SCR) type regulators will not be acceptable.

Regulators shall also have a built-in ammeter to display current levels at 10-30-100% brightness steps for 3 step Regulators and 2.8, 3.4, 4.1, 5.2, and 6.6Amp nominal output for 5 step Regulator.

Regulators shall be as manufactured by Siemens, or equal to match the existing regulators and spare parts in stock at the Airport. The Contractor shall verify and coordinate with regulator manufacturer the compatibility of proposed regulators and ALCMS.

109-2.19 OTHER ELECTRICAL EQUIPMENT

ADD:

Contractor shall provide the following items for the installation of the new ALCMS:

A). (2) 20A, 1-pole circuit breakers inside the existing lighting panel. Match existing circuit breakers.

109-2.20 WIRE

REVISE paragraph (a) "Control Circuits" first sentence to read:

Wire size shall not be less than #12AWG, unless otherwise detailed on the plans, and shall be insulated for 600 volts.

DELETE paragraph (b) 2 and (b) 3.

ADD paragraph (b) 2. 5,000 volts maximum - Wire shall be #8 AWG or larger, and conform to FAA L824 Type C specifications and ICEA S-66-524. Insulation shall be cross-linked polyethylene (XLP) with overall outer jacket of polyvinyl chloride (PVC). All cable shall utilize stranded, bare copper conductor.

109-2.22 ELECTRICAL EQUIPMENT TO BE INSTALLED INSIDE THE VAULT

ADD:

Contractor shall install all equipment necessary for a complete and operational airfield lighting vault including conduits and cabling inside the existing vault. The equipment shall include, but not limit to the following:
(A) 480VAC Circuit Breakers

Contractor shall install one 100A, 2 pole 480VAC and one 60A, 2-pole circuit breakers in existing High Voltage Power Distribution Panel. Breaker shall be Square D or equal. Existing spare and un-used circuit breakers shall be removed to make space for proposed circuit breakers in the panel.

109-2.23 L-890 Airfield Lighting Control and Monitoring System (ALCMS)

109-2.23-1 OVERVIEW

A. The Airfield Lighting Control and Monitoring System (ALCMS) shall combine state-of-the-art programming intelligence with high quality industrial strength components.

B. The system shall represent the leading edge in aviation lighting technology with innovative Touchscreen control stations; distributed control and monitoring; and powerful database storage and retrieval systems.

C. The ALCMS manufacturer shall be ISO 9001 certified and provide a copy of the ISO certification during the submittal process.

D. The ALCMS manufacturer shall be listed in the FAA Approved Equipment List, AC 150/5345-53 (current edition), be a FAA approved supplier of L-890 Airfield Lighting Control and Monitoring and Monitoring Systems in accordance with AC 150/5345-56 (current edition), and be a FAA approved supplier of Constant Current Regulator Monitors in accordance with AC 150/5345-10 (current edition).

E. The ALCMS manufacturer shall have a minimum of five (5) years of experience in computerized airfield lighting control and monitoring systems and shall have installed at least five (5) advanced control and monitoring systems of similar size and complexity to the one specified herein.

F. The ALCMS Manufacturer shall furnish and commission a complete and functional computerized distributed control and monitoring airfield lighting system based on an industry standard Ethernet network.

G. This project shall include software, programming, computers, manuals, on-site commissioning, on-site testing, on-site training and any other materials, tools and equipment to provide a fully functional system to the satisfaction of the Engineer.

H. The ALCMS Manufacturer shall provide an experienced and qualified Engineering, Sales and Service staff to support the contractor and airport throughout the installation and life of the system.

I. The ALCMS Manufacturer shall be responsible for verifying compatibilty of existing and proposed regulators with ALCMS. The ALCMS Manufacturer must verify that appropriate monitoring points are available on existing and proposed regulators. If required, the modifications to existing regulators shall be incidental to the installation of proposed ALCMS.

I. The project shall follow this basic cycle of events:

	Milestone	**Description**
1.	Submittal	The ALCMS Manufacturer shall submit ALCMS specifications to the contractor.
2.	Submittal Review and Approval	Submittal is reviewed by the contractor, airport, and engineer.
3.	Production Release	The ALCMS Manufacturer shall release approved system to manufacturing.
4.	Demo CD 35% Software Completion	The ALCMS Manufacturer shall send to the contractor, airport, and engineers a Demo CD of the planned layout of the touchscreen that will be used for the control of the ALCMS system.
5.	Production	System is manufactured.
6.	Production Testing	System is tested by the ALCMS Manufacturer.
7.	Factory Acceptance Testing	System is available for Factory Acceptance Testing (FAT) witnessed by airport/engineer.
8.	Shipment of system	Approved system is shipped to installation site.
9.	Installation	Contractor installs equipment and completes external wiring.
10.	Commissioning	The ALCMS Manufacturer shall arrive at installation site to complete commissioning of system and verify contractor installation and wiring.
11.	System Cut-over	The ALCMS Manufacturer and Contractor shall cut over the new system and bring it on-line and operational.
12.	System Acceptance Testing	System is available for System Acceptance Testing (SAT) which shall be witnessed the by airport and/or engineer.
13.	Manuals / As-Built drawings	The ALCMS Manufacturer shall issue operator manuals, maintenance manuals and ATC manuals and final as-built drawings.
14.	On-Site Training	The ALCMS Manufacturer shall complete on-site training of maintenance, Operations, and ATC personnel.
15.	Final Owner Acceptance	Upon completion of all contractual requirements, system is accepted in writing by the airport/engineer.
16.	Warranty and Support	The ALCMS Manufacturer shall provide warranty and support per the contractual requirements.

109-2.23-2 FACTORY ACCEPTANCE TEST (FAT)

A. Before shipment, the ALCMS system shall be assembled as an operating system at the ALCMS Manufacturer's test facilities.

B. The ALCMS Manufacturer shall make the FAT available for representative(s) of the airport and engineer to witness the testing of the system.

C. At a minimum, the FAT shall allow for one (1) day of testing and review, but may require additional time depending on the results of the testing.

D. The ALCMS Manufacturer shall incur the costs of setting up and performing the test excluding airport and engineer related travel and accommodations.

E. During the FAT, minor software comments shall be finalized and incorporated into the final system.

109-2.23-3 ALCMS EQUIPMENT AND MATERIALS

A. The ALCMS system shall be based on a network ready system that operates within a Windows XP™ operating environment.

B. The ALCMS shall be a PC-based system and shall not use any Programmable Logic Controller (PLC) components for control or monitoring.

C. An Ethernet communication network shall be used for data transfer between the electrical vault and control tower.

D. The computerized airfield lighting control and monitoring system shall consist of the following major hardware components:

1. Touchscreen control station located in the tower cab.
2. Tower computer subsystem consisting of an industrial enclosure, industrial tower computer and communication equipment.
3. Vault computer subsystem consisting of an industrial enclosure, industrial vault computer, Laser Jet Printer, communication equipment, and a redundant vault control / monitoring network.

E. Within the airfield lighting vault shall be a distributed control and monitoring system which operates on a redundant communication network. One DCME or PLC shall be installed inside the ATCT cab to control and monitor existing Beacon.

F. The Distributed Control and Monitoring Equipment (DCME) shall be of a distributed nature that shall be installed locally at each controlled element within the vault. The vault industrial computer communicates to each DCME via two (2) shielded cables each consisting of two (2) twisted pairs.

G. The system shall monitor the operation of the various lighting systems per AC 150/5345-10 (current edition) requirements.

109-2.23-4 COMMUNICATION NETWORK

A. The tower and electrical vault computer shall communicate with each other via multi-mode fiber optic communication networks.
B. The fiber optic cables shall be multi-mode, 850nm wavelength, 62.5/125 micron fiber cable. Each fiber communication link requires 2 fibers.
C. All fiber optic cable shall be terminated at a fiber optic patch panel within each subsystem before being terminated at the communication equipment.
D. Fiber optic jumper cables shall be provided from the fiber patch panel to the computer equipment enclosures.
E. Fiber optic cable shall be terminated with ST style connectors at the fiber optic transceivers located within the vault computer cabinet.
F. Fiber optic runs shall be direct point-point runs with no splices.

109-2.23-5 COMPUTERS

Industrial Computer

A. All the industrial-grade computers in the ALCMS system are identical and have the following technical specifications:

	Options	**Description**
a)	Type	Industrial-grade computer (Advantech)
b)	Processor Type	Intel Pentium® IV
c)	Processor Clock Rate	2.5 GHz or better
d)	Memory Capacity	1 GB RAM
e)	Hard Drive (Primary)	RAID 1, 120.0 GB, IDE, Western Digital 1200SB
f)	Hard Drive (Sec.)	RAID 1, 120.0 GB, IDE, Western Digital 1200SB
g)	Diskette Drive	1.44 MB, 3.5”
h)	Promise	Fastrack 100 PRO Kit
i)	Cache Memory	L2 512KB
j)	CD-ROM	52X
k)	Video (Integrated)	SVGA, 8MB VRAM, minimum support 1280 x 1024
l)	Operating System	Window XP™ PRO
m)	Dual Port USB Breakout	1700100170

Table 1: Industrial Computer Specifications

B. All the industrial-grade computers in the ALCMS system shall be designed using a slot board computer.

1. The computer back plane shall be passive, meaning a motherboard and daughter-board design is not acceptable.
2. The central processing unit (CPU) shall be on a slot board type card that is installed on the back plane of the computer chassis.
3. CPU upgrades shall be as simple as replacing the CPU of the slot board or removing the slot board card and plugging in a new one.
4. To ensure stability, the slot board computers shall have undergone a 140°F (60°C) dynamic burn-in test.
5. The slot board computer shall be designed to withstand harsh environmental conditions like shock, vibration, power surges and fluctuations, heavy dust, and extreme temperatures.

Vault Computer

A. The vault computer shall be capable of independently carrying out the following functions:

1. Decode all commands received and transfer them to the corresponding Distributed Control and Monitoring Equipment (DCME) unit for execution.
2. Interrogate all the DCME units to determine the status of the Constant Current Regulators (CCRs) and other controllable items.
3. Transfer the status of the CCRs and other controllable items to the control tower computer and maintenance center computer.
4. Continuously check for proper operation of all the communication links connected to the computer.
5. Continuously check for proper operation of the vault distributed control and monitoring network.
6. Duplicate the tower control and graphical displays for allowing authorized control from the vaults.
7. The vault shall also duplicate the maintenance center status information.
8. Provide hard copies of real-time and historical information on the status of the airfield lighting systems and other controlled and monitored items.
9. The vault computer application shall not be able to initiate lighting commands unless the control tower authorizes control to Vault.
10. Provide remote dial-in and diagnostics for the ALCMS manufacturer technical service personnel.

Tower Computer

A. The Tower computers shall be capable of independently carrying out the following functions:

1. Receive commands from the Touchscreen control stations and transfer lighting control commands to the vaults for execution.
2. Receive the airfield lighting status information from the vaults and transfer the status to the Touchscreen display.
3. Decode all commands received and transfer them to the corresponding Distributed Control and Monitoring Equipment (DCME) or PLC unit for execution (for Beacon control).
4. Interrogate all the DCME or PLC unit to determine the status of the Beacon.

109-2.23-6 TOUCHSCREEN CONTROL STATIONS

Technical Specifications

A. Touchscreen technology shall be integrated into the display monitor and shall have the following technical specifications:

	Options	**Description**
a.	Technology	AccuTouch™ Five-Wire Resistive
b.	Screen Resolution	1280 x 1024 (minimum)
c.	Touch Resolution	Touchpoint controller resolution of 4096 x 4096
d.	Input method	Finger or stylus
e.	Positional Accuracy	Standard deviation error less than 0.080” (2mm)
f.	Agency Approvals	UL, CE, FCC Class A
g.	Chemical Resistance	The active area of the Touchscreen is resistant to

		all chemicals that do not affect glass.
h.	Temperature/ Relative Humidity	-10°C to 50°C at 90% RH, non-condensing
i.	Electrostatic	Per EN 61000-4-2
j.	Light Transmission	80% +/- 5% at 550nm wavelength
k.	Face Plate	Anti-glare
l.	Expected Life	35 million touches in one location without failure

Touchscreen Monitor Specifications

A. The touchscreen video graphics display shall have the following technical specifications:

	Options	**Description**
a.	Type	LCD, active matrix
b.	Mounting	Flush Mount
c.	Size	19" Diagonal viewable
d.	Screen Resolution	1280 x 1024 (minimum)

B. Installation of the touchscreen and all cabinetry work and modifications is the responsibility of the Contractor.

C. The Contractor shall install to match existing cabinet construction and color. Coordinate all work in ATCT cab with FAA.

109-2.23-7 SUBSYSTEM EQUIPMENT

Tower Equipment

A. Computer

1. The Tower computer shall be a 19" industrial rack-mount type.
2. The computers shall meet previously specified technical requirements.
3. 120 VAC, uninterruptible power shall be supplied to the computer and the Tower Touchscreen Monitor.

B. Touchscreen Monitors

1. Touchscreen shall be mounted in the Tower cab console.
2. 120 VAC, uninterruptible power shall be supplied to the Tower Touchscreen

C. Video / Serial Communication Extension Equipment

1. A Video / Serial Communication extension Receiver box shall be installed in conjunction with each Touchscreen display under the tower cab console.
2. A Video / Serial Communication extension Transmitter box shall be installed in conjunction with the tower computer located in the tower sub-junction.
3. The video extension transmitter shall allow for simultaneous connection of the local service monitor and the remote touchscreen monitor.
4. A category 5 communications cable shall be installed between the Receiver and Transmitter.

D. Service Monitor (LCD)

1. The service display shall use a 17" LCD monitor.
2. The monitor shall be located on a shelf within the tower equipment enclosure.
3. 120 VAC, uninterruptible power shall be supplied to the monitor.

E. Audible Alarm assembly

1. An audible speaker shall be installed in conjunction with each Touchscreen display.
2. An audio and volume control cable shall be installed between the audible speaker and the tower computer located in the tower sub-junction.

F. Uninterruptible Power System

1. An uninterruptible power system (UPS) shall be provided for supporting power to the tower equipment, including DCME or PLC for Beacon controls.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.
3. The UPS shall be a 19" rack-mount unit installed in the tower computer equipment enclosure.

G. Industrial Enclosures

1. A NEMA 12 industrial enclosure shall be provided for housing associated tower computer equipment.
2. The enclosure shall be designed for indoor use to provide protection against dust, dirt, dripping water and external condensation of non-corrosive liquids.
3. The enclosure shall be an industry standard 19" rack-mount type enclosure.
4. The industrial enclosure shall include a pagoda top with exhaust fan and ventilation kit for proper convection cooling.
5. The environmental conditions within the area of the enclosure installation shall not exceed 122°F (50°C) or fall below 32°F (0°C).
6. Installation of the tower equipment shall be the responsibility of the electrical contractor. The electrical contractor with the airport and/or owner shall coordinate the installation and location of the tower equipment.

Vault Equipment

A. Computer

1. The vault computer shall be a 19" industrial rack-mount type.
2. The computers shall meet previously specified technical requirements.
3. 120 VAC, uninterruptible power shall be supplied to the computer.

B. Monitor

1. The service display shall use a 17" LCD monitor.
2. The monitor shall be located on a shelf within the vault equipment enclosure.
3. 120 VAC, uninterruptible power shall be supplied to the monitor.

C. Uninterruptible Power System: Vault Computer Equipment

1. An uninterruptible power system (UPS) shall be provided for supporting power to the vault equipment.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.

3. The UPS shall be a 19" rack-mount unit installed in the vault computer equipment enclosure.

D. Uninterruptible Power System: DCME Control and Monitoring Equipment

1. An uninterruptible power system (UPS) shall be provided for supporting power to the DCME equipment.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.
3. The UPS shall be a 19" rack-mount unit installed in the vault computer equipment enclosure.

E. Industrial Enclosures

1. A NEMA 12 industrial enclosure shall be provided for housing associated tower computer equipment.
2. The enclosure is designed for indoor use to provide protection against dust, dirt, dripping water, and external condensation of non-corrosive liquids.
3. The enclosure shall be an industry standard 19" rack-mount type enclosure.
4. The industrial enclosure shall include a pagoda top with exhaust fan and ventilation kit for proper convection cooling.
5. The environmental conditions within the area of the enclosure installation shall not exceed 122°F (50°C) or fall below 32°F (0°C).

F. Printer

1. The printer shall be a black and white Laser Jet Printer. The printer shall be located on a shelf within the vault equipment enclosure.

109-2.23-8 DISTRIBUTED CONTROL EQUIPMENT

A. The control and monitoring equipment shall be of a distributed nature and shall not be PLC based.

B. The DCME units shall be installed locally at each device (i.e. CCR) which requires control and/or monitoring within the airfield lighting electrical vault.

General

A. Each CCR and each controllable item shall be connected to a DCME.

B. The DCME shall be a microprocessor-based module that includes all of the communication, control commands, input/output connections and failsafe functionality.

C. The DCME shall communicate via a redundant (2 independent communication links) communications network.

D. Connections to the communication network shall be via quick disconnect terminal connectors that can easily be plugged and unplugged from the communication equipment.

E. The DCME shall communicate back to the Vault computer via either of the networks.

F. Removal of any DCME units from the vault network shall not affect the operation of the ALCMS system.

G. The DCME shall be a universal device that can be used on any type of CCR and/or controlled element from any manufacturer. ALCMS manufacturer verify the approporaite monitoring points

are available on existing CCR's, ATS, Beacon controller in ATCT, REIL controller and LAHSO controller.

H. Each DCME shall be identical and have interchangeable components.

I. The DCME unit shall provide optical isolation from all high voltage equipment including the CCR output current, CCR output voltage and CCR input voltage.

J. All high voltage interfaces to the DCME unit shall be via fiber optic cable.

Redundant Vault Control Network

A. The DCME redundant communication network shall use two (2) independent communication network cables installed in the electrical vault.

B. The vault network shall use two (2) cables each consisting of two (2), 24AWG, shielded twisted pairs with a common (drain wire) meeting EIA RS-485 applications (Belden™ no. 9842) or an ALCMS manufacturer approved equivalent.

C. The network shall be used to control and monitor all the various controllable elements located within the vault such as CCRs, REILS, LAHSO's and Generator.

D. Any malfunction in one network shall not affect the operation of the other communications network.

E. Any malfunction in one of the DCME communication ports shall transfer communication to the remaining port without affecting system functions.

Overview of Operation

A. Each DCME unit shall have a unique factory set address and a field programmable communication address.

B. The DCME receives commands via the vault network, executes those commands, and transfers back the status of the element to the vault computer.

C. The DCME shall perform the following functions:

1. Brightness setting control of the CCRs or ON/OFF control as required by the controlled element (i.e. generator may only require ON/OFF control).
2. Perform all failsafe functions.
3. Communication via both networks to the vault computer.
4. Self-diagnostic function to monitor for proper operation.
5. Locally store all data and parameters specific to the controlled element.

D. For maintenance purposes, the DCME shall have an internal ON/OFF switch and shall have a front hinged access door.

Basic DCME components

The DCME shall consist of the following basic components and functions:

A. Input / Output Board

1. Shall provide eight (8) mechanical latching output points. These control points shall also be self-monitored and provide back-indication to the Vault computer verifying proper execution of the control command.
2. Shall provide eight (8) optical-isolated input points.
3. Shall provide quick-disconnect terminal blocks that can be easily plugged and unplugged from the I/O board.

B. Monitor Board

1. Shall provide redundant communication network circuitry.
2. Shall provide quick-disconnect terminal blocks for redundant communication network connections.
3. Receives and transmits data to the vault computer.

C. Digital Display

1. Shall provide visual LED display of DCME status (Power, communications and monitoring).
2. Brightness Step: LED display indicating the commanded step of the CCR.
3. Channel A: LED display indicating the status of channel A of the redundant communication network.
4. Channel B: LED display indicating the status of channel B of the redundant communication network.
5. Ability to put the DCME into a “cycle mode” which alternately displays all monitored parameters.

109-2.23-9 DISTRIBUTED MONITORING EQUIPMENT

The DCME shall provide the following minimum monitoring:

L-829 Monitoring

A. The DCME unit shall provide full FAA L-829 monitoring per FAA AC 150/5345-10 (current edition).
B. The DCME shall include the monitoring board and provide the following information for each CCR:

1. Loss of input power to the CCR.
2. CCR shutdown by open-circuit / over-current protective devices.
3. Drop of more than 10% in the CCR VA load.
4. Failure of the CCR to deliver the selected output current.
5. The number of burnt-out lamps (L-850, L-852, L-861, L-861 series) in each series circuit. For best accuracy, all lamps/transformers are the same wattage and no film disc cutouts are used.
6. Remote / Local status of the CCR.
7. Actual CCR output current
8. Actual CCR output voltage
9. Actual CCR output load wattage (W)
10. Actual CCR output load Volts-Amps (VA)

C. The DCME digital display shall provide local indication of the CCR status including

1. Remote/Local: LED display indicating the status of the remote / local switch of the CCR.

2. Primary Power: LED display indicating the status of the input power to the CCR.
3. Over current: LED display indicating over current, protective shutdown.
4. Open circuit: LED display indicating open circuit status.

D. The DCME shall interface to an external current and voltage module (CVM) used to collect current and voltage information. The CVM shall meet the following minimum requirements.

1. Collects analog current and voltage samples at a high sample rate of 50,000 samples/second.
2. Transmits current and voltage samples to the DCME.
3. Provide digital fiber optical isolation between the DCME and the output of the CCR.
4. Quick disconnect fiber optic connections for interfacing to the DCME.

The ALCMS manufacturer shall provide the fiber optic cable between the CVM and the DCME.

Insulation Resistance Monitoring

A. The DCME unit shall provide insulation resistance monitoring as an integral component of the DCME unit.

B. The IRMS is capable of automatically or manually monitoring and reporting the insulation resistance value of the series circuit cabling (one IRMS per circuit).

C. The measured resistance shall be displayed locally at the DCME digital display.

D. The DCME unit shall be capable of reading and recording resistance values from less than 20k Ohms to 2G Ohms.

E. The DCME shall interface to an external insulation resistance module (IRM). The IRM shall meet the following minimum requirements.

1. Collects insulation resistance samples.
2. Transmits insulation resistance samples to the DCME.
3. Provide digital fiber optical isolation between the DCME and the output of the CCR.
4. Quick disconnect fiber optic connections for interfacing to the DCME.

The ALCMS manufacturer shall provide the fiber optic cables between the IRM board and the DCME.

F. The IRMS system shall be capable of taking resistance readings on circuits that are energized or de-energized. This shall allow the system to be used as a troubleshooting tool for assisting in locating circuit faults.

G. The IRMS system shall provide database record keeping that allows for graphical trend analysis of the insulation resistance readings.

H. The IRMS shall provide configurable insulation resistance warning and alarm limit notification to the system.

I. The IRMS shall be able to be configured for a minimum of two (2) reading times per day.

J. The IRMS shall be able to be configured to take readings hourly, daily, weekly or monthly.

K. All user programmable variables shall be able to be changed at any specified computer within the ALCMS system.

L. All the IRMS data shall be viewable either as real-time or as historical data at any specified computer location. The IRMS information shall be available at all times and shall not require any special transfer of data between the IRMS system and the control system (since the IRMS is an integral component of the ALCMS).

109-2.23-10 FAILSAFE

A. Each DCME unit shall provide a self-contained failsafe feature that shall perform the following functions:

1. Insure default operation of the airport lighting, even if the entire airport lighting control system is not functioning.
2. Display the commands sent by the computer to the CCRs and/or to the other controllable items.
3. Adaptable to each CCR regardless of internal or external control voltage.
4. Permits maintenance of portions of the control system, without changing the operational status of the lighting system.

B. The failsafe mode of each DCME unit shall be “Passive Failsafe” mode.
C. If the CCR was switched ON before the failure, it shall remain ON at the same brightness level.
D. If the CCR was switched OFF before the failure, it shall remain OFF.
E. Failsafe shall be able to be bypassed by selecting the CCR locally to any desired brightness level.

Failsafe Technical Specifications

A. The failsafe system shall operate independently of the computer, providing failsafe interfacing to the CCR and/or other controllable elements.
B. The failsafe system shall be based on electromechanical latching relays with the following characteristics:

Specification	**Rating**
Maximum switching voltage	240VAC, 125VDC
Nominal switching capacity	8A / 250VAC 5A / 30VDC
Rated current (resistive)	1A
Operational Life	Mechanical $5X10^7$ Electrical 10^5
Protection	IP67 (protection against ingress of dust and water in harmful quantities)

C. Mode of Operation

1. The commands executed by the DCME to switch the CCR and/or controllable element shall be momentary commands.
2. The control commands shall be mechanically latched upon execution.
3. Failure of the DCME and/or loss of communication to the network shall not change the status of the airport lighting.

109-2.23-11 GRAPHICAL USER INTERFACE OPERATION

General

A. The Tower Touchscreen display shall control and monitor the airfield lighting system. The display shall show real-time information on the operational status of the airfield lighting systems.

B. The Touchscreen control stations shall consist of multiple Touchscreen 'pages' each with a specific function. These Touchscreen 'pages' are defined as follows:

1. **Preset**: Consists of pre-defined preset buttons used to simplify airfield lighting control commands.
2. **Runway Lights**: Consists of runway control touch buttons used to individually control runway circuits. Multiple runway pages may be necessary for airports with several runways.
3. **Taxiway Lights**: Consists of taxiway control touch buttons used to individually control taxiway circuits if required.
4. **Utilities**: Consists of miscellaneous functions for calibrating the Touchscreen, granting lighting control to other locations, setting the date and time, etc.

C. All preset and control configurations shall be defined by the airport/owner in conjunction with Air Traffic Control requirements.
D. The ALCMS manufacturer shall provide preset tables to be used by the airport/owner to define the configuration settings.

Overview of Operation

A. Airfield lighting control commands are entered into the system by touching the corresponding touch button on the Touchscreen video display. When a command is entered, the Touchscreen shall respond by graphically displaying the button as being depressed and change the button color.

B. The associated circuit graphics shall alternately flash indicating the airfield lighting section that shall be affected when this command is "confirmed".

C. Once confirmed, the Tower Touchscreen shall register the command, generate a data instruction and transmit the command to the vault computer for implementation. The command is also simultaneously transmitted to the maintenance computer and all other computers connected to the network.

D. The tower Touchscreen shall receive confirmation from the vault that the corresponding equipment has responded to the control command and displays the current system status on the Touchscreen display.

E. In the event that communications is lost between the tower and vault, an alarm is indicated at each computer location.

F. In the event of a predefined alarm condition, the effected airfield lighting circuit graphic shall flash red and an audible alarm tone shall alert operators to the alarm condition.

109-2.23-12 ALCMS ALARM FUNCTIONS

Touchscreen Audible Alarm

A. The audible alarm shall sound at each Touchscreen display when an alarm condition occurs. In addition, the 'ALARM ACK' button shall flash and the associated airfield circuit graphics shall change to red.

B. The audible alarm shall stop automatically after three (3) seconds unless the 'ALARM ACK' button is pressed.

C. If the alarm is not acknowledged, the audible shall cease for sixty (60) seconds while the 'ALARM ACK' continues to flash. If the 'ALARM ACK' is still not pressed after the sixty (60) seconds, the audible shall sound again for three (3) seconds.

D. This sequence shall repeat indefinitely until the alarm is acknowledged.

Circuit Alarms

A. The ALCMS shall continuously monitor the status of all of the circuits per the monitoring requirements as specified previously.

B. If there are any monitoring discrepancies (i.e. incorrect CCR output current, loss of primary power) an alarm shall be generated at the Touchscreen display for the associated circuit.

109-2.23-13 TOUCHSCREEN COMMAND SEQUENCES

A. The Touchscreen control station shall allow the airfield lighting circuits to be controlled individually (i.e. RWY Edge) or as a group based on preset tables (See following section).

B. Each control command shall require two distinct operator actions in order for the command to initiate any state changes in the airfield lighting. The command sequence shall be as follows:

1. ***Select circuit:*** Operator selects the desired circuit to be changed.
2. ***Select intensity:*** Operator selects the desired brightness step that the circuit is to be changed to.
3. ***Graphics flash:*** The graphics associated with the selected circuit shall begin to flash visually indicating to the operator the airfield lighting section that is going to be affected by the command.
4. ***Confirm/Reject:*** Operator selects the 'CONFIRM' button to accept the selection and initiate the lighting change. Operator selects the 'REJECT' button to cancel the selections and make another selection.

109-2.23-14 TOUCHSCREEN PRESET SEQUENCES

A. The Touchscreen control station shall allow simultaneous airfield lighting circuit changes to be accomplished using preset lighting sequences.

B. The preset lighting sequences shall be defined by the airport in airfield lighting preset tables.

C. Each preset lighting change shall be based on the following operator inputs:

1. **Active Runway Selection:** Operator selects the runway(s) that shall be active. This is based on runway direction (i.e. "RWY 10")
2. **Day/Night Setting:** Operator selects the day/night setting. The day/night setting shall control the intensity of the circuits.
3. **Visibility:** Operator selects a single visibility setting that is based upon the current airport visibility.
4. **Confirm/Reject:** Operator selects the 'CONFIRM' button to accept the preset selections and initiate the lighting change. Operator selects the 'REJECT' button to cancel the selections and make another preset selection.

D. Upon confirmation of the preset selections, the intensity of all the circuits associated with the preset condition shall automatically change to match the visibility requirement.

E. The preset visibility setting of the CCRs is based on FAA document 7110.65J. Presets shall also be coordinated with the airport and the FAA to properly define airfield lighting operational usage.

F. The visibility settings shall include Intensity and Preset Invalid monitoring. This indicates when a preset or intensity setting on the airfield is different than the selected preset intensity.

G. According to FAA document 7110.65J, the visibility settings for the 5-step CCRs shall be based on the following table:

Visibility	**Day (Brightness step)**	**Night (Brightness step)**
Less than 1 mile	5	4
1 to but not including 2 miles	4	3
2 to but not including 3 miles	3	3
3 to 5 miles inclusive	0	2
More than 5 miles	0	1

Table 2: 5-step Regulators

H. following table:

Visibility	**Day (Brightness step)**	**Night (Brightness step)**
Less than 1 mile	3	2
1 to but not including 2 miles	0	1
2 to but not including 3 miles	0	1
3 to 5 miles inclusive	0	1
More than 5 miles	0	1

Table 3: 3-step Regulators

I. According to FAA document 7110.65J, the visibility settings for the 1-step CCRs shall be based on the following table:

Visibility	**Day (Brightness step)**	**Night (Brightness step)**
Less than 1 mile	1	1
1 to but not including 2 miles	0	1
2 to but not including 3 miles	0	1
3 to 5 miles inclusive	0	1
More than 5 miles	0	1

Table 4: 1-step Regulators

J. According to FAA document 7110.65J, the visibility settings for the Rotating Beacon shall be based on the following table:

Visibility	Day (Brightness step)	Night (Brightness step)
Less than 1 mile	ON	ON
1 to but not including 2 miles	ON	ON
2 to but not including 3 miles	ON	ON
3 to 5 miles inclusive	OFF	ON
More than 5 miles	OFF	ON

Table 5: Beacon

109-2.23-15 GRAPHICAL AIRPORT PICTORIAL

A. The ALCMS display screens shall display a graphical pictorial representation of the airport runways, taxiways and other requested airport features.

B. When there is a change in lighting system status, the appropriate graphical detail shall indicate the status by changing color.

C. The circuit intensity display colors shall be represented as seen in the legend as follows.

Figure 1: Brightness Step Color Legend

D. The status monitoring display colors shall be represented as seen in the legend as follows. This includes ATS monitoring, generator monitoring and communications monitoring:

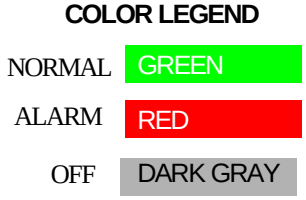


Figure 2: Status Monitoring Color Legend

109-2.23-16 VAULT EMERGENCY GENERATOR CONTROL

A. The ALCMS shall provide control of the emergency natural gas generator located next to the airfield lighting vault from all of the control stations.

B. The ALCMS shall provide one (1) optically isolated, dry-contact output point at the Automatic Transfer Switch in the Vault.

C. The ALCMS shall close the output to command the generator ON and open the output to turn the generator OFF.

D. The Tower shall only have generator monitoring capability at the time. However, the control of the generator can be added in the future.

E. Locating and wiring of the output points within the Generator equipment shall be completed by the Contractor in coordination with the airport/engineer and equipment manufacturer.

109-2.23-17 VAULT AUTOMATIC TRANSFER SWITCH (ATS) AND GENERATOR MONITORING

A. The ALCMS system shall provide the optically isolated digital inputs to monitor the following feedback points:

1. Utility Available
2. Utility On-line
3. Generator Available
4. Generator On-line
5. Generator Alarm

B. Locating and wiring of the monitoring points within the ATS and generator equipment shall be completed by the contractor in coordination with the airport/engineer and equipment manufacturer.

109-2.23-18 BEACON CONTROL

A. The ALCMS shall provide control of the rotating beacon from the ALCMS node.

B. The ALCMS shall provide one (1) optically isolated, dry-contact output point at the Beacon Control at the ATCT cab. The contractor shall install new contactor for Beacon control under the touchscreen panel in the ATCT cab. The Beacon shall be controlled and monitored from Tower ALCMS rack.

C. The ALCMS shall close the output to command the beacon ON and open the output to turn the beacon OFF. The contractor shall provide an interface relay/contactor to connect power to the beacon.

D. Locating and wiring of the output points within the Beacon equipment shall be completed by the Contractor in coordination with the airport/engineer and equipment manufacturer

109-2.23-19 RADIO CONTROL ENABLED CONTROL METHODOLOGY

A. The ALCMS shall provide an interface to the existing L-854 radio controller located inside the vault.

B. One (1) button labeled “Radio Control” will be programmed to allow air-to-ground radio control after normal operating hours.

C. When the radio control button is pressed, all preset settings are changed for radio operations according to the preset control methodology.

D. Radio Control preset lighting settings shall be specified by the airport.

Radio Control Interface

1. The ALCMS system shall provide three (3) inputs for Radio Control commands. Radio Control inputs shall be connected to a DCME at the vault.
2. The inputs shall be optically isolated and require the monitoring source and common from the monitored device.
3. The ALCMS DCME inputs shall be rated at 24-48VDC and 120-240VAC at 1 amp.
4. The ALCMS shall monitor the inputs and adjust the airfield lighting according to the Radio Control preset table.
5. The ALCMS shall only monitor for the radio control inputs when the "Radio Control" button is enabled at the Tower.
6. Locating and wiring of Radio Control output points shall be completed by the contractor in coordination with the airport/engineer and equipment manufacturer.

CONSTRUCTION METHODS

109-3.10 GENERAL

ADD:

Contractor shall install the proposed 20KW regulator for the Taxiway A, B, E & F circuit while providing the necessary control wires. Contractor shall also install the proposed 30 KW spare regulator at the location shown on the plans. The existing regulators shall be removed as shown on the plans.

All conduits and junction boxes shall be painted to match existing conditions. The cost of painting shall be incidental to Item AR109210.

The existing PLC based airfield lighting control system shall remain in service until the new ALCMS is installed, tested and operational.

The equipment installation and mounting shall comply with the requirement of the National Electrical Code and local code agency having jurisdiction.

109-3.15 WIRING AND CONNECTIONS

ADD:

Plastic wire duct shall be used for routing wires inside control panels. After wiring is completed, covers are to be installed on all plastic duct.

109-3.16 MARKING AND LABELING

ADD:

All new or relocated equipment, control wires, etc. installed under this contract shall be tagged, marked, or labeled as required.

109-3.18 TESTING

ADD:

The installation shall be tested in operation as a completed unit prior to acceptance. Tests shall include resistance, voltage and current readings, as required by the Engineer. Testing equipment shall be furnished by the Contractor. Tests shall be conducted as directed by the Engineer and shall be to his satisfaction. The Contractor shall be responsible for all equipment and conduit in place which will be connected to the new equipment, and any equipment or materials found to be defective or damaged shall be replaced by the Contractor at his own expense.

All testing shall be in the presence of the Engineer and an Airport Representative.

109-3.19 OPERATION AND MAINTENANCE MANUALS

ADD:

The Contractor shall supply four (4) copies of Operational and Maintenance Manuals for the Constant Current Regulator and revised schematics for PLC controller.

109-3.20 ALCMS INSTALLATION

109-3.20-1 CONTRACTOR INSTALLATION REQUIREMENTS

A. The installing contractor shall be responsible for the physical installation of all associated ALCMS components. At a minimum, this includes the Constant Current Regulators (CCRs), computer cabinets, Touchscreen control stations and Distributed Control and Monitoring Equipment (DCME).

B. The Contractor shall furnish, install, relocate, connect and test all equipment, equipment accessories, conduit cables, wires, buses, grounds and support necessary to insure a complete and operable electrical distribution facility for the airport lighting system as specified in the submittal package.

C. The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction.

D. The Contractor shall make all necessary electrical connections at each location in accordance with the ALCMS manufacturer's wiring diagrams.

E. All wires called out in the drawings associated with equipment that is to be controlled or monitored should be pulled, terminated and dressed at the appropriate terminal blocks and at the associated equipment.

F. The Contractor shall leave sufficient extra wire length on each control/monitoring lead to make future changes in connections at the terminal block.

G. All equipment, control wires, terminal blocks, etc., shall be tagged, marked or labeled as specified below:
    1. Wire Identification: The Contractor shall furnish and install labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks.
    2. Wire labels, if used, shall be of the self-sticking, pre-printed type and of the manufacturer's recommended size for the wire involved. Identification markings designated in the plans shall be followed.

3. Tags, if used, shall be nonferrous metal or plastic. Each tag shall be securely tied to the proper wire by a nonmetallic cord or plastic wire tie.

109-3.20-2 INSTALLATION OF DATA CABLES

A. The Contractor shall install, terminate and test all data cables required for the project. This includes all of the following components: Data cables, terminal cabinets and jumper cables.
B. All associated data cables shall be tested upon completion of the cable installation and termination of connectors.
C. Tests shall include verification of point-point continuity of each wire.
D. All test data shall be recorded and included in a test report that shall be submitted to the airport / engineer for approval.
E. Commissioning of the system shall not begin until all test reports are submitted and approved and a copy provided to ALCMS Manufacturer.

109-3.20-3 ALCMS MANUFACTURING COMMISSIONING

A. The ALCMS Manufacturer shall perform the following installation and commissioning tasks:

1. Verify Contractor connections including power, control and monitoring.
2. Verify proper labeling of equipment.
3. Verify communication connections.
4. Perform system testing including control, monitoring and diagnostics.
5. Training on ALCMS related equipment.
6. Perform System Acceptance Testing (SAT).

109-3.20-4 SYSTEM ACCEPTANCE TEST (SAT)

A. Following the final installation and commissioning of the system, the ALCMS Manufacturer shall perform a demonstration of the system performance. This demonstration shall include the following:

1. Lighting control functions
2. Monitoring functions
3. Alarm functions
4. Print and Display functions

B. The ALCMS Manufacturer shall develop a SAT test plan in accordance with the specifications and issue this to the contractor for approval from the airport engineer.

C. The SAT shall be witnessed by owner representatives, the contractor and the engineer.

109-3.20-5 MANUALS

Maintenance Manuals

A. The ALCMS Manufacturer shall provide six (6) hard copies of the operation and maintenance manuals that are hard-covered and suitable for daily operation and maintenance of the system. The manuals shall include the following information:

1. Operational overview and system description
2. Graphical User Interface (GUI) Screen operation
3. System Block Diagram
4. Detailed external wiring diagrams (Electrical Contractor wiring)
5. Detailed input/output terminal diagrams
6. Detailed assembly drawings and wiring diagrams

7. Original Equipment Manufacturer (OEM) Manuals

B. The manuals shall be spiral bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

FAA Air Traffic Control Manuals

A. The ALCMS Manufacturer shall provide six (6) hard copies of the operation manuals for Air Traffic Controller (ATC) use. The manuals shall be hard-covered and suitable for daily operation of the system. At a minimum, the manuals shall include the following information:

1. Touchscreen operation (graphical user interface)
2. Touchscreen maintenance (i.e. calibration)

B. The manuals shall be spiral bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

109-3.20-6 AS-INSTALLED DRAWINGS

A. The ALCMS Manufacturer shall provide six (6) hard copies of As-Installed drawings after system acceptance. The As-Installed drawings shall include the following information:

1. System Block Diagram (1-line drawings)
2. System External Wiring Diagrams
3. Assembly Drawings
4. Assembly Wiring Diagrams

B. The As-Installed drawings shall be 11” X 17” in size and shall be spiral bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

109-3.20-7 ON-SITE TRAINING

A. The ALCMS Manufacturer shall provide to the contractor a final training course syllabus and training schedule thirty (30) days before on-site training.

B. All training sessions shall be held in a facility provided by the airport. This facility should have tables, chairs, projection screen and sufficient space to lay out manuals and drawings. The ALCMS Manufacturer shall provide all required visual aids and projectors.

FAA Training

A. FAA Air Traffic Control should designate a Training Coordinator that shall be responsible for scheduling and organizing on-site training for their personnel. In addition, this coordinator shall be responsible for training other personnel that were absent or unable to attend the training sessions.

B. The ALCMS Manufacturer shall provide two (2), 1 hour User Training Class for Air Traffic Control (ATC) personnel. ATC Training Coordinator should be present for both classes. This training shall include discussion and review of the following:

1. ALCMS General System Overview
2. Touchscreen Operations
3. Using the Control System (GUI)
4. Command and Control Sequences

5. Alarm and Warning Messages
6. Failsafe Conditions
7. Granting Local Control to the Vaults

C. Training classes for FAA ATC personnel should be limited to a maximum of 4-6 people per class.

Maintenance Training

A. Maintenance should designate a Training Coordinator that shall be responsible for scheduling and organizing on-site training for their personnel. In addition, this coordinator shall be responsible for training other personnel that were absent or unable to attend the training sessions.

B. The ALCMS Manufacturer shall provide two (2), 8 hour (one day) training class for maintenance personnel. This training shall include discussion and review of the following:

1. System Block Diagram
2. System Assemblies and Wiring Diagrams
3. Touchscreen Operation
4. Graphical User Interface (GUI) Screens
5. Maintenance and Troubleshooting
6. Granting Local Control to the Vaults
7. Power Up and Power Down Sequences
8. Failsafe Operations
9. Implementing Airfield Lighting Changes
10. Maintenance Report Generation

C. Training classes for maintenance personnel should be limited to a maximum of 4-6 people per class.

109-3.20-8 OWNER SYSTEM ACCEPTANCE AND WARRANTY START DATE

A. Upon successful completion of the SAT and on-site training the owner shall issue the ALCMS Manufacturer a written notice of system acceptance within five (5) working days.

B. The date the final acceptance letter is received or five (5) days following successful completion of the SAT (whichever occurs first) represents the start of the warranty period. Please refer to the Warranty section for more information regarding the ALCMS warranty guarantee.

109-3.20-9 SYSTEM WARRANTY

A. All equipment shall be warranted against defects in workmanship, hardware and software for a period of one (1) year from initial operation of the system.

B. During this time period the ALCMS manufacturer shall provide all parts, labor and technical support.

109-3.20-10 SYSTEM SERVICE AND SUPPORT

A. The ALCMS Manufacturer shall provide technical assistance and support during the warranty period.

B. The ALCMS Manufacturer shall provide a 7 day a week / 24 hours a day support phone line.

C. The ALCMS Manufacturer shall provide technical phone support within four (4) hours of the initial call.

D. The ALCMS Manufacturer shall provide free phone consultation and technical support as required during the warranty period and if necessary shall be on-site within 24 hours.

E. At the request of the airport/engineer, the ALCMS Manufacturer shall provide information about preventative maintenance programs and extended warranty packages.

109-3.20-11 SPARE PARTS

A. A spare parts package shall be included as part of the bid to the contractor.

B. At a minimum, the spare parts package shall include the following components:

Qty	Part Number	Description
1		Touchscreen
1		Computer, Industrial, to match industrial hardware supplied
2		Distributed Control and Monitoring Equipment (DCME) Assembly
2		Current / Voltage Module (CVM)
2		Insulation Resistance Module (IRM)
2		Ethernet Fiber Optic Transceiver
2		Network Interface Card (NIC)

METHOD OF MEASUREMENT

109-4.1, 4.2, 4.3

DELETE: These Sections.

109-4.4

ADD:

The quantity of materials and work to be paid for under this item shall be as follows:

1) The installation of the proposed 20KW and 30KW regulators shall include the connections as specified as incidental in this section, tools and labor required to furnish a complete operational system. The cost for new circuit breakers and cable/conduit required for each regulator shall also be included in the pay item for each regulator. The cost for removal and disconnection of existing regulators shall also be included in this pay item.

2) The proposed Airfield Lighting Control and Monitoring System (ALCMS) shall include all material and labor required for the installation of computer racks, touchscreens, IRM, DCME, Cable/Conduit, testing, training, removal of existing control system, spares and associated items required for a complete and operational system.

BASIS OF PAYMENT

109-5.1

REVISE: This Section to read as follows:

Payment will be at the contract unit price per lump sum or each as described below, complete and accepted for each item. This price shall be compensation in full for all preparation, assembly, removal, materials, labor, equipment, tools and incidentals necessary to complete the item as specified herein or as directed by the Engineer.

Payment will be made under:

ITEM AR109341 20 KW REGULATOR, STYLE 1 – PER EACH.
ITEM AT109362 30 KW REGULATOR, STYLE 2 – PER EACH.
ITEM AT109630 LIGHTING CONTROL COMPUTER SYSTEM – PER LUMP SUM.

ITEM 110 – INSTALLATION OF AIRPORT UNDERGROUND ELECTRICAL DUCT

DESCRIPTION

110-1.1

ADD:

This item shall consist of the construction of new PVC conduit direct bury, direct burial steel duct, concrete encased duct banks including appropriate duct markers at the locations shown in the plans or as directed by the Engineer.

Contractor shall provide pull wire for each conduit and cap the unused conduits for future use.

EQUIPMENT AND MATERIALS

110-2.2 STEEL CONDUIT

ADD:

Rigid steel conduit and fittings shall conform to the requirements of Underwriters Laboratories Standard 6, and ANSI C 80.1.

110-2.9 DUCT MARKER

ADD:

The Contractor shall provide duct markers for each new or existing duct being used as detailed in the plans. The cost of installation of the duct markers shall be incidental to the contract.

Brass duct markers shall only be used at bituminous pavement locations as shown on the plans. At concrete pavement locations, the Contractor shall stamp the concrete as directed by the Engineer.

Contractor shall provide duct markers for each proposed concrete encased duct or existing duct being used as detailed in the plans. Contractor shall also replace all existing duct markers within the project concrete overlay and bituminous overlay limits as detailed in the plans. The cost of replacement and installation of the duct markers shall be incidental to the contract.

110-2.10 ELECTRICAL HANDHOLES

ADD:

The Contractor shall install handholes at locations specified and as detailed in the plans.

110-2.11 ELECTRICAL MANHOLES

ADD:

Contractor shall install manholes in locations specified and as detailed in the plans. Electrical manholes shall meet the requirements of IDOT Standard 602401 as modified by details on the plans. Manholes shall have flat slab-top.

110-2.12 AGGREGATE BACKFILL

ADD:

Crushed stone material conforming to the requirements of Item 208 gradation shall be used for backfill at the pavement crossings for the proposed duct installation. The granular material shall be compacted to not less than 95% of Modified Proctor laboratory density. In lieu of Aggregate, the contractor may substitute Controlled low strength material backfill for those areas requiring aggregate backfill. This substitution must be approved in writing prior to construction and must be completed at no additional cost to the contract. The CLSM material will be considered incidental to the associated duct item.

CONSTRUCTION METHODS

110-3.5 BACKFILLING

ADD:

Crushed Stone conforming to the requirements of Item 208 gradation shall be used for backfill at the pavement crossings for the new duct installation. The granular material shall be compacted to not less than 95% of Modified Proctor laboratory density.

110-3.8 REMOVALS

ADD:

The existing manholes, handholes and duct called out for removal shall be completely removed and disposed of off Airport property by the contractor. Where the removals fall within limits of existing, proposed or future pavement the void shall be backfilled with granular backfill material and compacted according to Section 701-3.5. At locations outside of pavement areas the void shall be backfilled and compacted according to Section 152. Backfilling shall be incidental to the removal.

METHOD OF MEASUREMENT

110-4.1

DELETE: This Section.

ADD:

The quantity of concrete encased duct, direct buried PVC and GRS conduit and jacked GRS conduit to be paid for shall be the number of lineal feet installed, measured in place, completed, and accepted. No separate measurement will be made for individual ducts in a multi-way duct system. The quantity shall also include trench and backfill.

110-4.2

DELETE: This Section.

ADD:

The quantity of electrical manholes and handholes to be paid for shall be the number of each installed in place and/or removed, completed and accepted by the Engineer.

BASIS OF PAYMENT

110-5.1

ADD:

Payment will be made at the contract unit price per lineal foot for each type and size of concrete encased duct bank, GRS conduit and PVC conduit completed and accepted. Payment will be made at the contract unit price per each electrical handhole completed and accepted. Payment will be made at the contract unit price per each electrical manhole and handhole completely removed, and accepted. These prices shall be full compensation for furnishing all materials and for all preparation, assembly, aggregate backfill, backfill, compaction, sawcutting and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete these items.

Trenching and backfilling shall also be included in the installation or removal of duct, conduit and structures and shall not be paid for separately. Topsoiling and seeding of the duct and conduit trench shall not be paid for separately but shall be considered incidental to the associated duct.

Payment will be made under:

ITEM AR110202	**2" PVC DUCT, DIRECT BURY – PER LINEAR FOOT.**
ITEM AR110212	**2" STEEL DUCT, DIRECT BURY – PER LINEAR FOOT.**
ITEM AR110312	**2" STEEL DUCT, JACKED – PER LINEAR FOOT.**
ITEM AR110504	**4-WAY CONCRETE ENCASED DUCT – PER LINEAR FOOT.**
ITEM AR110610	**ELECTRICAL HANDHOLE – PER EACH.**
ITEM AR110906	**REMOVE ELECTRICAL HANDHOLE – PER EACH.**

ITEM 125 – INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1

ADD:

Airfield lighting improvements and modifications shall include:

- Installation of new medium intensity base mounted taxiway lights.
- Installation of a new medium intensity base mounted runway light.
- Installation of new taxiway guidance signs.
- Installation of a new splice can.
- Removal of existing medium intensity base and stake mounted taxiway lights.
- Adjustment of existing medium intensity base mounted taxiway lights.
- Removal of existing taxiway guidance signs, both wooden and lighted.

125-1.9 INSPECTION, TEST AND WARRANTY

ADD:

VISUAL EXAMINATION

The most important of all inspection and test procedures is thorough visual inspections. Visual inspections shall be made frequently during installation, at completion of installation, and before energizing the circuits. A careful visual inspection can reveal defects that can be corrected prior to acceptance tests and energization. Serious damage may occur if defects are subjected to electrical tests or energization. Visual inspections shall include appraisal of:

(a) Correctness of external connections.

(b) Good work performance.

(c) Cleanliness.

(d) Safety hazards.

(e) Specific requirements listed herein for individual items. While all equipment manufactured under specifications pass strict factory tests prior to shipment, it shall be inspected for shipping damage immediately upon receipt.

ELECTRICAL TESTS ON SERIES LIGHTING CIRCUITS

Before modifying any series circuit, verify the performance of the existing circuit by checking the supply voltage to the regulator and measuring the output current from the regulator on all brightness steps under existing load.

(a) For home run segments that will not be replaced, disconnect at S-1 cutout and at first fixture and verify cable continuity.

(b) Check cable connections and perform electrical tests on cable as specified in Section 108.

LIGHTING FIXTURES

An inspection shall be made to determine that the color, quantity, and locations of light are in accordance with the installation drawings. Each light shall be inspected to determine that it is operable, glass is not broken or cracked, correct lamps are installed, and it has been properly leveled and aimed, in accordance with technical orders and manufacturers instructions, where applicable.

CONSTANT CURRENT REGULATORS

The supply voltage and input and output current shall be checked at the regulator to see that they operate properly and that regulators are not overloaded due to shorts to ground or excessive leakage.

(a) Visual Examination. Each constant current regulator shall be visually examined to insure that porcelain bushings are not cracked, no shipping damage has occurred, internal and external connections are correct, switches and relays operate freely and are not tied or blocked, fuses (if required) are correct, and that the oil level of oil-filled regulators is correct. Relay panel covers only shall be removed for this examination; it is not necessary to open the main tank of oil-filled regulators. The instructions on the plates attached to the regulator shall be accomplished. After examination and tests are completed, replace all covers tightly.

(b) Electric Tests. The supply voltage and input tap shall be checked to see that they correspond. With the load disconnected, the regulator shall be energized and the open circuit protector observed to see that it de-energizes the regulator within 2 or 3 seconds.

FINAL ACCEPTANCE TESTS

After components and circuits have been inspected, as specified in the preceding paragraphs, the entire system shall be inspected and tested as follows:

(a) Operate each switch for the modified lighting circuits from the remote control position (ATCT) so that each switch position is reached at least twice. During this process, all lights and vault equipment shall be observed to determine that each switch properly controls the corresponding circuit.

(b) Repeat the above test using the local control switches on the regulators.

(c) Each lighting circuit shall be tested by operating it continuously at maximum brightness for at least 6 hours. Visual inspection shall be made at the beginning and end of this test to determine that the correct numbers of lights are operating at full brightness. Dimming of some or all of the lights in a circuit is an indication of grounded cables.

(d) In addition to the above, all equipment shall be subjected to any and all performance tests specified in the manufacturer's instructions.

(e) Photometric testing. The Airport may, upon completion of the lighting installation and as part of acceptance testing, perform field photometric testing of each new light fixture to assure the installed runway lights meet the photometric requirements specified by FAA. The test results will be recorded and furnished to the Contractor, with any noted deficiencies. The Contractor is responsible for correcting any deficiencies at no additional cost to the Owner. The Contractor shall furnish spares in support of this testing, to include 15% lamps and 5% lenses for the new in-pavement lights. Spares not used shall be provided to the Airport upon completion of the work

125-1.10 GUARANTEE

ADD:

All equipment furnished and work performed under the Contract Documents shall be guaranteed against defects in materials or workmanship for a period of one (1) year from the date of final acceptance. This guarantee does not replace any responsibility for errors or omissions as set forth in state law. Any long-term warranties issued or offered by manufacturers for items of equipment shall be turned over to the Airport.

125-1.11

Any failure of equipment or work due to defects in materials or workmanship shall be corrected by the Contractor at no cost to the Airport.

125-1.12

The Contractor shall ascertain that all lighting system components furnished by him (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any incompatible components furnished by the Contractor shall be replaced by him at no additional cost to the Airport with a similar unit approved by the Project Engineer (different model or manufacturer) that is compatible with the remainder of the airport lighting system.

125-1.13

The Contractor-installed equipment (including FAA approved) shall not generate any electromagnetic interference in the existing and/or new communications, weather and air traffic control equipment. Any equipment generating such interferences shall be replaced by the Contractor at no additional cost with the equipment meeting applicable specifications and not generating any interference.

EQUIPMENT AND MATERIALS

125-2.1 GENERAL

ADD:

All new equipment shall be listed in Advisory Circular 150/5345-53(Latest Edition) - Approved Airport Lighting Equipment.

Before any electrical materials are ordered, the Contractor shall furnish the Engineer a list of the materials and equipment to be incorporated in the work. This list shall include the name of each item, the Federal Aviation Administration specification number, the manufacturer's name, the manufacturer's catalog number, and the size, type and/or rating of each item, catalog cuts, test data, fuse curves, outline drawings, nameplate drawings, wiring diagrams, and schematic diagrams.

After the list has been approved by the Engineer and prior to installation, the Contractor shall assemble the equipment and materials at a single location, on-site, and request inspection by the Engineer. None of the equipment or materials, other than duct or conduit, may be used on the job until such as inspection has been completed.

All test results from required tests shall be submitted to the Engineer for review and approval.

Airport lighting equipment and materials covered by FAA specifications shall have prior approval of the Federal Aviation Administration, Airport Service, Washington, DC 20591, and shall be listed in the current

edition of FAA Advisory Circular AC 150/5345-53, Airport Lighting Equipment Certification Program. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when required by the Engineer.

The following documents, of the issue in effect on the date of application for qualification, are applicable to the extent specified:

Item	Specification	Advisory Circular
Elevated Lights	L-861, L-862	AC 150/5345-46B
In-Pavement Lights	L-850C	AC 150/5345-46
Transformers, Isolation, 60 Hz	L-830	AC 150/5345-47A
Light base, load bearing	L-868	AC 150/5345-42C
Light base, non-load bearing	L-867	AC 150/5345-42C
Elevated Marker	L-853	AC 150/5345-39B

All FAA Advisory Circular referenced in this specification refer to the most recent edition in circulation.

125-2.7 ISOLATION TRANSFORMERS

ADD:

New transformers for shall be L-830, 6.6A Pri./6.6A Sec. of the wattage recommended by the manufacturer. The number of transformers per light shall also be as recommended by the manufacturer.

125-2.8 LIGHT CANS

ADD:

3/4" thick blank cover plates shall be provided as required.

125-2.10 TAPE

ADD:

Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal.

125-2.11 AIRFIELD SIGNS

ADD:

Taxi holding position signs and taxi guidance signs shall conform to the type, class, style, nomenclature and dimensions shown in the plans to match the existing guidance signs and as specified herein.

Airfield taxiway signs shall be L-858, Size 2, Style 2, Class 2 confirming to the nomenclature indicated in the Plans. For the purposes of this specification, a character shall be defined as a letter, numeral, dot, dash or arrow to be indicated on the sign nomenclature. Sign components and lengths shall be as recommended by the manufacturer. Airfield signs shall conform to nomenclature, number of digits, and dimensions indicated in the plans and specified in FAA circular AC 150/5345-44 (latest revision).

When existing signs are proposed to be retrofitted with new sign panels, the sign panels shall conform to the applicable requirements of Advisory Circular 150/5340-18 (latest revision). The Contractor shall verify that the proposed sign panels are compatible with the existing sign assemblies.

125-2.14 RUNWAY AND TAXIWAY LIGHTS

ADD:

Taxiway lights shall be base or stake mounted as shown on the plans and shall meet the following FAA specifications:

L-861T Medium Intensity Taxiway Lights
L-861 Medium Intensity Runway Lights

CONSTRUCTION METHODS

125-3.1 GENERAL

ADD:

The Contractor shall exercise caution in the installation and removal of all light units. Any units damaged by the Contractor's operations shall be repaired or replaced to the satisfaction of the Engineer at no additional cost to the contract.

125-3.4 PHASING AND INTERRUPTIONS

ADD:

All existing electrical equipment and lighting systems not included in the phase of work being performed must be kept in operation, unless prior approval of the Owner has been received and as otherwise specified below and on the Drawings. The Contractor may use salvaged materials for temporary construction where required. The permission for temporary work and using salvaged materials shall be obtained from the Owner. Lighting for active runway and taxiway surfaces shall be maintained. Work shall be coordinated with paving operations.

Refer to the special provision of the specification for notification requirements and other information regarding work interruptions due to airport operational requirements or Contractor anticipation for exceeding the limitations described in the above paragraph.

125-3.5 GUIDANCE SIGN REMOVAL

ADD:

The Contractor shall exercise care in removal of the existing airfield signs to prevent damage. The existing bases shall be completely removed and disposed of off of the Airport. Areas shall be backfilled, to existing elevations, graded, seeded and mulched.

Existing taxi guidance signs to be removed that are unlit and wooden shall be removed and shall remain property of the Airport. The signs shall be removed with the wooden posts completely removed and intact.

Signs to be removed shall remain the property of the Airport and shall be stored at the location designated by the Engineer. All units shall be cleaned prior to storage.

125-3.6 SIGN PANEL MODIFICATION

ADD:

Contractor shall remove existing sign panels and replace with new sign panels as shown on the Plans. Unused sign panels shall remain the property of the Airport.

Following the removal of the existing sign panels, each existing sign panel shall be cleaned and stored at the location designated by the Engineer.

125-3.7 LIGHT/BASE REMOVAL

ADD:

Existing light bases shall be completely removed and disposed of by the Contractor off of airport property. The excavations shall be backfilled with earth and compacted to the satisfaction of the Engineer.

Existing fixtures and transformers shall be salvaged and remain the property of the Airport. The material shall be delivered to the Airport Maintenance Facility.

METHOD OF MEASUREMENT

125-4.1

DELETE: Entire section.

ADD:

The quantities to be paid for under this item shall consist of:

(a) The number of taxiway edge lights and signs completely removed.
(b) The number of taxiway guidance signs modified.
(c) The number of taxiway edge lights adjusted.
(d) The number of taxiway guidance signs relocated.
(e) The number of taxiway guidance signs in place as complete units and accepted by the Engineer.
(f) The number of edge lights in place as complete units and accepted by the Engineer.
(g) The number of splice cans in place as complete unit and accepted by Engineer.

BASIS OF PAYMENT

125-5.1

ADD:

Payment will be made at the contract unit price for each complete item furnished and installed in place by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, removals, modifications, relocation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment for topsoiling and seeding of the Item 125 installation areas shall not be paid for separately but shall be considered incidental to the associated item.

Payment will be made under:

ITEM AR125415	**MITL – BASE MOUNTED – PER EACH.**
ITEM AR125443	**TAXI GUIDANCE SIGN, 3 CHARACTER – PER EACH.**
ITEM AR125444	**TAXI GUIDANCE SIGN, 4 CHARACTER – PER EACH.**
ITEM AR125445	**TAXI GUIDANCE SIGN, 5 CHARACTER – PER EACH.**
ITEM AR125470	**MODIFY EXISTING SIGN PANEL – PER EACH.**
ITEM AR125510	**MIRL, BASE MOUNTED – PER EACH.**
ITEM AR125565	**SPLICE CAN – PER EACH.**
ITEM AR125901	**REMOVE STAKE MOUNTED LIGHT – PER EACH.**
ITEM AR125902	**REMOVE BASE MOUNTED LIGHT – PER EACH.**
ITEM AR125904	**REMOVE TAXI GUIDANCE SIGN – PER EACH.**
ITEM AR125942	**ADJUST BASE MOUNTED LIGHT – PER EACH.**
ITEM AR125964	**RELOCATE TAXI GUIDANCE SIGN – PER EACH.**
ITEM AR800154	**REMOVE WOODEN TAXI GUIDANCE SIGN – PER EACH.**
ITEM AR800194	**REMOVE ELEVATED RETROREFLECTIVE MARKER – PER EACH.**

DIVISION VIII – MISCELLANEOUS

ITEM 163 - CONSTRUCTION FENCING

DESCRIPTION

163-1.1

This item shall include the installation and maintenance of temporary construction fencing as shown on the plans or as directed by the Engineer.

MATERIALS

163-2.1

The fence fabric shall be International Orange Polyethylene Safety Fence. The fence fabric shall be a minimum of 4 feet in height and shall be approved by the Engineer prior to installation.

CONSTRUCTION METHODS

163-3.1

The protective fencing shall be tied to conventional notched metal "T" posts driven into the ground to a depth of at least 18 inches. "T" posts shall be spaced every 6 to 8 feet along the entire length of the protective fencing.

163-3.2

A minimum of three (3) cable ties shall be placed at each fence post to secure the fence fabric to the post.

163-3.3

A tension wire or rope shall be installed as a top and bottom stringer and woven through the top and bottom row of strands to prevent sagging.

163-3.4

The fabric shall be overlapped at least three (3) feet at all joints and secured with at least three (3) cable ties at the overlaps.

METHOD OF MEASUREMENT

163-4.1

The Construction Fence shall be measured in place by the number of lineal feet satisfactorily installed and maintained throughout the duration of the contract. The fence shall be maintained to the satisfaction of the Owner.

BASIS OF PAYMENT

163-5.1

Payment shall be made at the contract unit price for CONSTRUCTION FENCE, per lineal foot. This price shall be full compensation for furnishing all materials, labor, equipment, maintenance and necessary incidentals to complete the item as shown on the plans and as specified herein. The removal of the fence at the completion of the project shall be included in the price for CONSTRUCTION FENCE.

Payment will be made under:

ITEM AR163520 CONSTRUCTION FENCE – PER LINEAR FOOT.

ITEM 760 - WATERMAIN

DESCRIPTION

760-1.1

The Contractor shall furnish and install the proposed ductile iron pipe of the diameter specified at the locations shown on the plans. The ductile iron pipe shall include excavation, granular bedding, installation of the ductile iron pipe, polyethylene wrap, cement lined ductile iron fittings, testing and chlorination of the ductile iron pipe and all incidental work required for a complete and operational piping system.

Temporary shutoff, protection, removal and associated actions for the removal of the existing affected section of water main will be incidental to this item.

Select granular backfill will be incidental to this item.

Polyethylene encasement and taping of all joints shall be installed for all buried ductile iron piping, fittings and valves as shown on the plans.

All watermain work shall conform to Village of Wheeling Standards.

MATERIALS

760-2.1 DUCTILE IRON PIPE

Ductile iron pipe shall be cement-mortar lined and asphaltic coated per ANSI A21.4 (AWWA C-104), ductile iron pipe, push-on type, conforming to the requirements of ANSI specification A21.51 (AWWA C-151), Class 52.

Sections of ductile iron pipe shall be connected by means of push-on joints except at those locations noted on the plans requiring mechanical joints, consisting of bells cast integrally with the pipe, which have interior angular recesses conforming to the shape and dimension of a rubber sealing gasket. The interior dimensions of which is such that it will admit the insertion of the spigot end of the joining pipe in a manner that will compress the gasket tightly between the bell of the pipe and the inserted spigot, thus securing the gasket and sealing the joint. Such push-on joints shall be of the following makes or equal, conforming to the requirements of A.N.S.I. A21.51 (AWWA C-151), Class 52.

(1) Super Belltite - as supplied by Clow Corporation.
(2) Tyton - as supplied by the U.S. Pipe and Foundry Co.
(3) Fastite - as supplied by American Pipe Company

The lubricant used in conjunction with the push-on joints shall be of material that is recommended by the suppliers specified above, or an acceptable commercially processed animal fat or vegetable shortening.

760-2.2 BEDDING

Bedding shall meet the IDOT CA-11 gradation unless otherwise approved by the Engineer. The bedding shall be mechanically tamped into place.

760-2.3 BACKFILL

The material used for select granular backfill shall be aggregate meeting the requirements of IDOT CA-6 gradation set forth in Item 208.

760-2.6 IRON FITTINGS

Fittings shall be cement lined, tar coated ductile iron with mechanical rubber gasketed joints rated 250 psi and conforming to AWWA C-110/ANSI 21.20. (Clow, American, U.S. Pipe or equal). All fittings shall incorporate retainer glands. All Retainer Glands shall be Tyler or Mueller Class 350 Mechanical Joints with Megalugs.

760-2.7 POLYETHYLENE WRAP

The watermain shall be wrapped in 8 mil. thick (minimum) polyethylene wrap in accordance with AWWA C105/A21.55-82 suitable for the appropriate diameter of pipe.

760-2.8 CASING PIPE

At the location shown on the drawings, pipe lines shall be installed in a steel casing pipe. The steel casing pipe shall be bituminous coated and shall be of leakproof construction, capable of withstanding the anticipated loadings. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of ASTM A139, Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding. The minimum wall thickness of the steel casing pipe shall be .312 inches.

Casing pipe diameter shall be such that there is a minimum of 6" clearance between the largest diameter part of the carrying pipe being installed and the minimum inside diameter of the casing pipe including welds. To facilitate the installation of the inner pipe, that pipe shall be fitted with at least three casing chocks per pipe length. The casing chocks shall be made of corrosion resistant materials and shall have a friction coefficient of 0.12. The casing chocks shall be Model 4810 as manufactured by Power Seal Pipeline Products Corporation of Witchita Falls, Texas, or equal.

CONSTRUCTION METHODS

760-3.1 DUCTILE IRON PIPE INSTALLATION

The ductile iron pipe shall be installed as detailed on the plans and in accordance with the applicable provisions of the “Standard Specifications for Water and Sewer Main Construction in Illinois” (latest edition). The ductile iron pipe shall be installed to the grades shown on the plans and shall have a nominal minimum depth of cover of five feet six inches (5'-6") from proposed, future or existing grades.

The Contractor shall excavate under the ductile iron pipe bells to assure uniform bearing of the pipe on the bottom of the trench. Granular bedding shall be placed along the entire length of all ductile iron pipe from six (6) inches below ductile iron pipe to the spring line of the pipe. The bedding material shall be incidental to the ductile iron pipe.

If the excavation has been made deeper than necessary, the ductile iron pipe shall be laid at the lower depth, and no additional cost shall be charged to the OWNER for the extra excavation, or for subsequent adjustments to fire hydrants, valve vaults or house services. All excavated materials not needed for backfilling the trenches shall be disposed of by the Contractor.

Water in the trench shall be removed during pipe laying and jointing operations. This cost shall be considered incidental to the watermain. Provisions shall be made to prevent floating of the pipe. Trench water shall not be allowed to enter the pipe at any time.

Adequate provisions shall be made for safely storing and protecting all water pipe prior to the actual installation in the trench. Care shall be taken to prevent damage to the pipe castings, both inside and out. Provisions shall be made to keep the inside of the pipe clean throughout its storage period and to keep mud and/or debris from being deposited therein.

All watermain crossings shall be in accordance with IEPA separation requirements. Where a watermain must cross above an existing sanitary or storm sewer, the invert of the watermain shall be a minimum of 18" above the crown of the sewer for at least 10 feet each side of the crossing. Where proper vertical separation is not obtainable the watermain shall be encased in steel casing pipe to 10 feet either side of the sewer crossing. The casing pipe shall be 6" greater than the bell diameter of the watermain.

Where a watermain must cross below an existing sanitary or storm sewer, the crown of the watermain shall be a minimum of 18" below the invert of the sewer and encased in steel casing pipe for 10 feet either side of the crossing.

All pipe shall be thoroughly cleaned on the inside before laying. Proper equipment shall be used for the safe handling, conveying and laying of the pipe. All pipe shall be carefully lowered into the trench, piece by piece, by means of suitable tools or equipment, in such a manner as to prevent damage to watermain materials and protective coatings and linings. Under no circumstances shall watermain material be dropped or dumped into the trench.

The pipe shall be inspected for defects. All lumps, blisters and excess coal tar coating shall be removed from the ends of each pipe, and the inside of the bell.

When connecting joints, all portions of the joining materials and the socket and spigot ends of the joining pipe shall be wiped clean of all foreign materials. The actual assembly of the joint shall be in accordance with the manufacturer's installation instructions. During the construction and until joining operations are complete, the open ends of all pipes shall be at all times protected and sealed with temporary water tight plugs.

The entire section of the pipe shall be pushed forward to seat the spigot end into the bell. After the section of pipe is inserted into the bell (when joining pipe to mechanical joint fittings) the gasket shall then be pressed into place within the bell, being careful to have the gasket evenly located around the entire joint.

760-3.2 BACKFILL

All trenches in the locations described above shall be backfilled with selected granular backfill to a point not less than two (2) feet from the outside edges of existing and proposed pavement and one (1) foot from the outside edges of existing and proposed sidewalk.

Non-paved areas shall be backfilled from the springline with originally excavated material free from rocks, frozen material or large clods and shall be carefully placed and compacted to prevent damage to or the dislodging of the ductile iron pipe.

In paved areas, select granular backfill (from the springline of the pipe to the proposed subgrade) shall be constructed in accordance with the applicable sections of the Specification and shall be considered incidental to the sewer pipe.

All trenches shall be compacted during backfilling by mechanical compaction in no greater than 6" lifts to a minimum of 95% of the Modified Proctor Density in accordance with ASTM-1557.

760-3.3 TESTING

The Contractor shall notify the Village of Wheeling and Resident Engineer 48 hours in advance of the testing. A Village of Wheeling representative and Resident Engineer shall be present at all testing.

Contractor shall pressure test by filling the pipe with clean water under a minimum hydrostatic pressure of one hundred fifty (150) pounds per square inch for two (2) hours. The testing shall be in conformance with the "Standard Specifications for Water and Sewer Main Construction in Illinois," Latest Edition.

After completion of the hydrostatic pressure test the Contractor shall conduct a leakage test to determine the quantity of water lost by leakage under the specified test pressure. The leakage test shall be in conformance with the "Standard Specifications for Water and Sewer Main Construction in Illinois," Latest Edition and in conformance with Village of Wheeling.

When pressure and leakage tests are completed and prior to being placed into service, the ductile iron pipe and appurtenances shall be disinfected by a method of chlorination approved by the Engineer.

Disinfection of the ductile iron pipe shall conform to the "Standard Specifications for Water and Sewer Main Construction in Illinois," Latest Edition and per the requirements of the Village of Wheeling.

Any defects, cracks or leakage that may develop or may be discovered, either in the joints or in the body of the castings, shall be promptly repaired by the Contractor at his own expense.

760-3.5 IRON FITTINGS

The Contractor shall install ductile iron pipe fittings in accordance with the drawings, the requirements stated herein, and the applicable construction requirements of Division IV of the "Standard Specifications for Water and Sewer Main Construction in Illinois", as follows:

DIVISION IV WATER DISTRIBUTION
Section 40 Pipe for Water Main and Service Connections
Section 41 Pipe Installation for Water Mains

All fittings which deflect the flow 11-1/4 degrees or greater shall have a thrust block. Thrust blocks shall be poured concrete of the dimensions shown on the drawings and in accordance with the provisions of the "Standard Specifications for Water and Sewer Main Construction in Illinois". Fittings shall be installed with “Megalug” brand retaining glands.

760-3.5 POLYETHYLENE WRAP

The pipe shall be installed in polyethylene encasement in accordance with the installation guidelines in AWWA specifications C105/A21.5-93 and as detailed on the plans.

All fittings shall be wrapped with two layers of polyethylene film which shall be clean and free of soil and aggregates. The film shall not be punctured, streaked or damaged during installation and backfilling otherwise the Contractor shall replace the two layers of film at his own expense.

760-3.6 CASING PIPE

The carrier pipe within the casing pipe shall be encased with polyethylene film in tube or sheet form. The material and installation procedures shall conform to AWWA C105, latest revision.

After the carrier pipe is installed in the casing, the ends of the casing shall be sealed with a concrete cap or a manufactured end seal as shown on the plans.

METHOD OF MEASUREMENT

760-4.1

Ductile iron pipe will be measured per lineal foot, installed, ready for use and accepted by the Engineer.

24" steel casing pipe will be measured per lineal foot, installed, ready for use and accepted by the Engineer.

Removal of the existing water main pipe, polyethylene wrap, fittings and bedding shall not be measured separately, but shall be considered incidental to the construction of the water main pipe.

BASIS FOR PAYMENT

760-5.1

Excavation, removal of existing pipe, bedding, installation of ductile iron pipe, connections, compaction, pressure testing, chlorination shall be included and paid for on a watermain per lineal foot basis. Said price shall include all labor, materials, equipment and incidentals as shown on the plans and as specified herein to construct a complete and operational piping system.

Payment for iron fittings shall be considered incidental to the proposed watermain. This item shall also include all work associated with construction of the thrust blocks and connections to existing watermain.

No direct payment will be made for Polyethylene Wrap. The cost of furnishing and installing Polyethylene Wrap shall be considered incidental to the contract unit prices for the respective pay items utilizing the Polyethylene Wrap. These prices shall be full compensation for furnishing all materials and for all preparation, delivering and installation of these materials, and for all labor, equipment and incidentals necessary to complete the item.

Select granular backfill will be incidental to this item. The bedding material shall be incidental to the watermain.

24" steel casing pipe shall be paid for on a per lineal foot basis installed and shall include all labor, materials, equipment and incidentals as shown on the plans and as specified herein.

Payment will be made under:

ITEM AR760508 8" DUCTILE IRON WATER MAIN – PER LINEAR FOOT.
ITEM AR760724 24" STEEL CASING – PER LINEAR FOOT.

ITEM 800015 – REPLACE BENCHMARK

DESCRIPTION

800015-1.1

This item shall consist of removing an existing NOAA monument and constructing a new benchmark in accordance with these specifications, the National Geodetic Survey document titled "Bench Mark Reset Procedures" (dated May 2007) included as Appendix A and as detailed on the plans.

MATERIALS

800015-2.1

Concrete shall meet the requirements of Section 610 of the specifications.

CONSTRUCTION METHODS

800015-3.1

Following completion of earthwork, the contractor shall auger a hole in accordance with the document included as Appendix A and the detail contained in the plans. The hole shall be filled with 610 concrete and a brass plate shall be placed flush with the top.

800015-3.2

Once complete, the contractor shall arrange for an Illinois Professional Land Surveyor to determine the geodetic position, state coordinates and MSL elevation of the monument with a probable accuracy of third order or better. This information shall be transmitted to the Engineer along with the Illinois Professional Land Surveyor's certification of the accuracy of this information.

800015-3.3

The Resident Engineer shall be given at least two (2) day's notice prior to removing the existing monument. The Contractor shall provide photographic evidence of the removal process and shall submit the photos to the Engineer for documentation purposes. Additionally, the Contractor shall present the Engineer with the existing brass disc so that it may be sent to NGS for removal from the database.

METHOD OF MEASUREMENT

800015-4.1

The benchmark to be paid for shall be measured per each complete and accepted by the Engineer.

BASIS OF PAYMENT

800015-5.1

The accepted number of benchmarks will be paid at the contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all augering and

disposal of materials' furnishing specified surveys, removal of existing benchmark, and for all labor, equipment, tools and incidentals necessary to reset the benchmarks.

Payment will be made under:

ITEM AR800015 REPLACE BENCHMARK – PER EACH.

ITEM 800053 – SOIL GUARD

DESCRIPTION

800053-1.1

This item consists of the application of a bonded fiber matrix to provide erosion control as shown on the plans or as directed by the Engineer.

MATERIALS

800053-2.1

The erosion materials used shall be Weyerhauser SOIL GUARD, or approved equal. When considering equals, it shall be the IDA Materials Engineer's sole authority to determine equals. Substitute non-conforming materials with credit will not be considered.

CONSTRUCTION METHODS

800053-3.1

All erosion control materials shall be placed in accordance with the manufacturer's recommendations. Applicators shall be certified by the manufacturer. Proof of written certification shall be provided to the Engineer prior to installation.

METHOD OF MEASUREMENT

800053-4.1

Soil Guard application shall be measured in square yards on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

800053-5.1

Payment will be made at the contract unit price per square yard for soil guard mulching. This price shall be full compensation for furnishing all materials and for placing the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

ITEM AR800053 SOIL GUARD – PER SQUARE YARD.

ITEM 800153 – CONCRETE WASHOUT

DESCRIPTION

800153-1.1

This item consists of the construction, maintenance and eventual removal of a temporary concrete washout facility, at locations shown on the plans or as coordinated with the Engineer, as well as the legal disposal of all concrete washout and materials contained within as required for the duration of the project.

The Contractor has the option of constructing either the above ground temporary washout or the below ground temporary washout, as detailed in the plans.

MATERIALS

800153-2.1 – PLASTIC LINER

Plastic liners shall be single ply, new polyethylene sheeting, a minimum of 10 mil thick, and shall be free of holes, punctures, tears or other defects that compromise the impermeability of the material. Plastic liners shall not have seams or overlapping joints.

800153-2.2 – HAY OR STRAW BALES

Shall be either hay or straw, approved by the Resident Engineer, compacted and adequately bound by wire.

800153-2.3 – STAKES

Stakes shall be wood or metal. Wood stakes shall be of sound wood and shall be 2" x 2" in size. Metal stakes may be used as an alternative, and shall be a minimum of ½" in diameter. Stakes shall be a minimum 4' in length. The tops of the metal stakes shall be bent at a 90- degree angle or capped with an orange or red plastic safety cap that fits snugly to the metal stake. The Contractor shall submit a sample of the metal stake and plastic cap, if used, for the Engineer's approval prior to installation.

800153-2.4 – STAPLES

Staples shall be as shown on the plans. An alternative attachment device such as geotextile pins or plastic pegs may be used instead of staples. The Contractor shall submit a sample of the alternative attachment device for the Engineer's approval prior to installation.

800153-2.5 – SIGNS

A sign shall be installed within 20 feet of the temporary concrete washout facility. The sign shall be constructed as shown in the plans. The sign shall read "Concrete Washout" in 6" tall letters.

CONSTRUCTION METHODS

800153-3.1

Temporary concrete washout facilities shall be installed before beginning placement of concrete and located a minimum distance of 50 feet from storm drain inlets, open drainage facilities and water courses unless determined infeasible by the Engineer. Temporary concrete washout facilities shall be located away from construction traffic or access areas at a location determined by the Contractor and approved by the Engineer.

A sign shall be installed adjacent to each washout facility as detailed in the plans.

The length and width of a temporary concrete washout facility may be increased from the minimum dimensions shown on the plans upon approval of the Engineer.

Temporary concrete washout facilities shall be constructed in sufficient size to contain liquid and concrete waste generated by washout operations for concrete wastes. These facilities shall be constructed to contain liquid and concrete waste without seepage, spills or overflow.

Berms for below grade temporary concrete washout facilities shall be constructed from compacted native material. Gravel may be used in conjunction with compacted native material.

A plastic liner shall be installed in each temporary concrete washout facility.

Details for an alternative temporary concrete washout facility shall be submitted to the Engineer for approval at least 7 days before installation.

When temporary concrete washout facilities are no longer required for work, as determined by the Engineer, the hardened concrete, liquid residue and washout materials shall be removed and disposed of offsite at a legal dumpsite. Ground disturbances, including holes and depressions, caused by the installation and removal of the temporary concrete washout facilities shall be repaired to pre-construction conditions to the satisfaction of the Engineer. Restoration shall include placing a minimum 4" of topsoil and seeding and mulching the area.

800153-3.2 – MAINTENANCE

Temporary concrete washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 1 foot. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials shall be removed and disposed of offsite at a legal dumpsite. Holes, rips and voids in the plastic liner shall be patched and repaired by taping or the plastic liner shall be replaced. The plastic liner shall be replaced when patches or repairs compromise the impermeability of the material as determined by the Engineer. Temporary concrete washout facilities shall be repaired or replaced on the same day the damage occurs.

METHOD OF MEASUREMENT

800153-4.1

Temporary concrete washout facilities shall be measured per lump sum and shall include construction of the washout facilities, maintenance and removal of the washout facilities.

BASIS OF PAYMENT

800153-5.1

Payment will be made at the contract lump sum price for temporary concrete washout facilities. This price shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals and for performing all work involved in constructing a temporary concrete washout facility, complete in place, including excavation and backfill, maintenance and removal, as shown on the plans.

Payment will be made under:

ITEM AR800153 CONCRETE WASHOUT – PER LUMP SUM.

ITEM 800178 – FIBER OPTIC DATA TRANSMISSION SYSTEM

DESCRIPTION

800-1.1 GENERAL

Detail drawings including a complete list of equipment and material, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Detail drawings shall contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will properly function with its associated system.

800-1.2 SYSTEM DESCRIPTION

A fiber optics (FO) data transmission system (DTS) shall be provided. The data transmission system shall consist of fiber optic transmission media, transmitter and receiver modules, FO modems, transceiver modules, repeaters, power line surge protection and terminal devices (such as connectors, patch panels and breakout boxes). The data transmission system shall interconnect system components as shown.

800-1.3 ENVIRONMENTAL REQUIREMENTS

Equipment and cable to be utilized indoors shall be rated for continuous operation under ambient environmental conditions of 0 to 50°C (35 to 120°F) dry bulb and 10 to 95 percent relative humidity, noncondensing. Equipment shall be rated for continuous operation under the ambient environmental temperature, pressure, humidity, and vibration conditions specified or normally encountered for the installed location. Fiber optic cable for outdoor installation shall be rated for minus 40 to plus 60°C minus 40 to plus 122°F.

800-1.4 ELECTRICAL REQURIEMENTS

The equipment shall operate from a voltage source as shown, plus or minus 10 percent, and 60 Hz, plus or minus 2 percent.

800-1.5 GROUP V TECHNICAL DATA PACKAGE

The Group V package consists of the operation and maintenance data, in manual format. Final copies of the manuals bound in hardback, loose-leaf binders, shall be delivered to the Government within 30 days after completing the endurance test. The draft copy used during site testing shall be updated with any changes required prior to final delivery of the manuals. Each manual's contents shall be identified on the cover. The manuals shall include the names, addresses, and telephone numbers of each subcontractor installing equipment and systems, and of the nearest service representative for each item of equipment and each system. The manuals shall have a table of contents and tab sheets. Tab sheets shall be placed at the beginning of each chapter or section and at the beginning of each appendix. The final copies delivered after completion of the endurance test shall include all modifications made during installation, checkout, and acceptance. Manuals delivered shall include:

a. Functional Design Manual: two copies.
b. Hardware Manual: two copies.
c. Operator's Manual: four copies.

d. Maintenance Manuals: four copies.

800-1.6 FUNCTIONAL DESIGN MANUAL

The functional design manual shall identify the operational requirements for the data transmission system and explain the theory of operation, design philosophy, and specific functions. A description of hardware functions, interfaces, and requirements shall be included for all system operating modes.

800-1.7 HARDWARE MANUAL

A manual describing equipment furnished, including:

a. General description and specifications.
b. Installation and checkout procedures.
c. Equipment electrical schematics and layout drawings.
d. Data transmission systems schematics.
e. Alignment and calibration procedures.
f. Manufacturer's repair parts list indicating sources of supply.

800-1.8 OPERATOR'S MANUAL

The operator's manual shall fully explain procedures and instructions for operation of the system.

800-1.9 MAINTENANCE MANUAL

The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

PART 2 PRODUCTS

800-2.1 FO MODEMS

FO modems shall be selected to meet FO system requirements. The modems shall allow full duplex, asynchronous, point-to-point digital communication using an FO pair.

800-2.1.1 FO MODEM INPUTS AND OUTPUTS

NOTE: Match the input and output configurations to the equipment to be interconnected. The data rate of the FO modem must exceed the data rate of the devices served.

FO modems shall accept inputs and provide outputs compatible with [EIA ANSI/EIA/TIA-232-F] [EIA ANSI/TIA/EIA-485-A] [20 mA current loop] [T1]. Digital data rates through each link shall be [9.6 KBPS] [19.2 KBPS] [38.4 KBPS] [1.54 MBPS].

800-2.3 DIGITAL FO TRANSMITTER AND RECEIVER MODULES

FO transmitter/receiver pairs used to pass digital signals shall accept inputs and provide outputs compatible with [EIA ANSI/EIA/TIA-232-F] [EIA ANSI/TIA/EIA-485-A] [20 mA current loop] [T1]. Digital data rates through each link shall be [9.6 KBPS] [19.2 KBPS] [38.4 KBPS] [1.54 MBPS]. FO transmitter and receiver modules shall be housed [in field equipment enclosures where possible] [in new enclosures] [

as shown]. FO transmitter and receiver modules shall be compatible with each other, the FO cable, and connectors.

800-2.4 FO DIGITAL REPEATERS

FO digital repeaters shall be used to extend the range of the FO data transmission system when necessary to meet the requirements of paragraph SYSTEM REQUIREMENTS. For simplex circuits, the repeater shall consist of an FO receiver connected to an FO transmitter. For Duplex circuits, the repeater shall consist of a pair of FO receivers that are connected to a pair of FO transmitters. The FO receivers shall receive the optical signal and drive the transmitters. The transmitters shall regenerate the optical signal at the transmission rate specified. The FO repeater shall be mechanically and optically compatible with the remainder of the FO system.

800-2.5 DATA TRANSMISSION CONVERTER

Data transmission converters shall be used to connect equipment using EIA ANSI/TIA/EIA-485-A data transmission when necessary and as shown. Converters shall operate full duplex and support two wire circuits at speeds up to 2 megabytes per second and have a built in 120 ohm terminating resistor. Converters shall be mechanically, electrically, and optically compatible with the system.

800-2.6 ENCLOSURES

Enclosures shall conform to the requirements of NEMA 250 for the types specified. Finish color shall be the manufacturer's standard, unless otherwise indicated. Damaged surfaces shall be repaired and refinished using original type finish.

800-2.7 SYSTEM REQUIREMENTS

800-2.7-1 SIGNAL TRANSMISSION FORMAT CODE

FO equipment shall use the same transmission code format from the beginning of a circuit to the end of that circuit. Different transmission code formats may be used for different circuits as required to interconnect supported equipment.

800-2.7-2 FLUX BUDGET/GAIN MARGIN

FO links shall have a minimum gain margin of 6 dB. The flux budget is the difference between the transmitter output power and the receiver input power required for signal discrimination when both are expressed in dBm. The flux budget shall be equal to the sum of losses (such as insertion losses, connector and splice losses, and transmission losses) plus the gain margin. When a repeater or other signal regenerating device is inserted to extend the length of an FO circuit, both the circuit between the transmitter and the repeater-receiver, and the circuit between the repeater-transmitter and the receiver are considered independent FO links for gain margin calculations.

800-2.7-3 RECEIVER DYNAMIC RANGE

The dynamic range of receivers shall be large enough to accommodate both the worst-case, minimum receiver flux density and the maximum possible, receiver flux density. The receiver dynamic range shall be at least 15 dB. Where required, optical attenuators shall be used to force the FO link power to fall within the receiver dynamic range.

800-2.8 OPTICAL FIBERS

800-2.8-1 GENERAL

Optical fibers shall be coated with a suitable material to preserve the intrinsic strength of the glass. The outside diameter of the glass-cladded fiber shall be nominally 125 microns, and shall be concentric with the fiber core. Optical fibers shall meet EIA ANSI/EIA/TIA-455-46A, and EIA ANSI/TIA/EIA-455-177A.

800-2.8-2 62.5 MICRON MULTIMODE FIBERS

Conductors for the airfield lighting control and monitoring system shall be multimode, graded index, solid glass waveguides with a nominal core diameter of 62.5 microns. The fiber shall have transmission windows centered at 850 and 1330 nanometer wavelengths. The numerical aperture for each fiber shall be a minimum of 0.275. The attenuation at 850 nanometers shall be 4.0 dB/Km or less. The attenuation at 1330 nanometers shall be 1.5 dB/Km or less. The minimum bandwidth shall be 160 MHz-Km at 850 nanometers and 400 MHz-Km at 1300 nanometers. FO cable shall be certified to meet EIA ANSI/EIA/TIA-455-30B and EIA ANSI/EIA/TIA-455-58A.

800-2.9 PATCH PANELS

Patch panels shall be a complete system of components by a single manufacturer, and shall provide termination, splice storage, routing, radius limiting, cable fastening, storage, and cross-connection. Patch panel connectors and couplers shall be the same type and configuration as used elsewhere in the system.

800-2.10 CABLE CONSTRUCTION

800-2.10-1 GENERAL

The cable shall contain a minimum of two fiber optic conductors for each full duplex circuit. The number of fibers in each cable shall be as shown. Each fiber shall be protected by a protective tube. Cables shall have a jacketed strength member, and an exterior jacket. Cable and fiber protective covering shall be free from holes, splits, blisters, and other imperfections. The covering shall be flame retardant, moisture resistant, non-nutrient to fungus, ultraviolet light resistant as specified and nontoxic. Mechanical stress present in cable shall not be transmitted to the optical fibers. Strength members shall be non-metallic and shall be an integral part of the cable construction. The combined strength of all the strength members shall be sufficient to support eh stress of installation and to protect the cable in service. The exterior cables shall have a minimum storage temperature range of minus 20 to plus 70°C, (minus 40 to plus 167°F). Interior cables shall have a minimum storage temperature of minus 10 to plus 75°C, (plus 14 to plus 167°F). All cable furnished shall meet the requirement of NFPA 70. Fire resistant characteristics of cables shall conform to Article 770, Sections 49, 50, and 51. A flooding compound shall be applied into the interior of the fiber tubes, into the interstitial spaces between the tubes, to the core covering, and between the core covering and jacket of all cable to be installed aerially, underground, and in locations susceptible to moisture. Flooded cables shall comply with EIA ANSI/EIA-455-81A-91 and EIA ANSI/EIA/TIA-455-82B. Cables shall be from the same manufacturer, of the same cable type, and of the same size. Each fiber and protective coverings shall be continuous with no factory splices. Fiber optic cable assemblies, including jacketing and fibers, shall be certified by the manufacturer to have a minimum life of 30 years. Plenum cable shall meet UL 910, and riser cable shall meet UL 1666. FO cable shall be certified to meet the following: EIA ANSI/TIA/EIA-455-13A, EIA ANSI/EIA/TIA-455-25B, EIA

ANSI/TIA/EIA-455-41A, EIA ANSI/EIA/TIA-455-47B, EIA ANSI/EIA/TIA-455-59, EIA ANSI/EIA/TIA-455-61, EIA-455-88, EIA ANSI/EIA-455-91, EIA ANSI/TIA/EIA-455-104A, AND EIA ANSI/EIA-455-171.

800-2.10-2 INTERIOR CABLE

a. Loose buffer tube cable construction shall be such that the optical fibers shall be surrounded by a tube buffer, shall be contained in a channel or otherwise loosely packaged to provide clearance between the fibers and the inside of the container to allow for thermal expansions without constraining the fiber. The protective container shall be extruded from a material having a coefficient of friction sufficiently low to allow the fiber free movement. The cable outer jacket shall be flame retardant polyvinyl chloride (PVC) of fluorocopolymer (FCP), which complies with NFPA 70 for OFNP applications. Tensile strength, impact resistance, and crush resistance shall not exceed manufacturers' recommendations.

b. Tight buffer tube cable construction shall be extrusion of plastic over each cladded fiber, with an outer jacket of flame retardant PVC or FCP, which complies with NFPA 70 for OFNR requirements for riser cables and vertical shaft installations. Optical fibers shall be covered in near contact with an extrusion tube and shall have an intermediate soft buffer to allow for the thermal expansions and minor pressures. Tensile strength, impact resistance, and crush resistance shall not exceed manufacturer's recommendations.

c. Plenum Rated Cables: Cable to be installed inside plenums shall additionally meet the requirements of UL 910.

800-2.10-3 PIGTAIL CABLES

Cable used for connections to equipment shall be flexible fiber pigtail cables having the same physical and operational characteristics as the parent cable. The cable jacket shall be flame retardant PVC or FCP, which complies with NFPA 70 for OFNP applications. Maximum dB loss for pigtail cable shall be 3.5 dB/km at 850 nanometers, and 1.0 dB/km at 1330 nanometers.

800-2.11 FO CONNECTORS

FO connectors shall be the straight tip, bayonet style, field installable, self-aligning and centering. FO connectors shall match the fiber core and cladding diameters. The connector coupler shall be stainless steel and the alignment ferrule shall be ceramic. FO equipment and cable shall use the same type connectors. Connector insertion loss shall be nominally 0.3 dB and less than 0.7 dB.

PART 3 EXECUTION

800-3.1 INSTALLATION

System components and appurtenances shall be installed in accordance with the manufacturer's instructions and as shown. Interconnections, services, and adjustments required for a complete and operable data transmission system shall be provided.

800-3.1-1 INTERIOR WORK

Cable installation and applications shall meet the requirements of NFPA 70, Article 770, Sections 52 and 53. Cables not installed in conduits or wireways shall be properly secured and neat in appearance, and if installed in plenums or other spaces used for environmental air, shall comply with NFPA 70 requirements for this type of installation.

800-3.1-2 EXTERIOR UNDERGROUND CABLE

Except as otherwise specified, all underground FO Cable shall be installed in existing ducts/conduits.

a. For cables installed in ducts and conduit, a cable lubricant compatible with the cable sheathing material shall be used on all cables pulled. Pulling fixtures shall be attached to the cable strength members. If indirect attachments are used, the grip diameter and length shall be matched to the cable diameter and characteristics. If an indirect attachment is used on cables having only central strength members, the pulling forces shall be reduced to ensure that the fibers are not damaged from forces being transmitted to the strength member. During pulling the cable pull line tension shall be continuously monitored using dynamometers or load-cell instruments, and shall not exceed the maximum tension specified by the cable manufacturer. The mechanical stress placed upon the cable during installation shall be such that the cable is not twisted or stretched. A cable feeder guide shall be used between the cable reel and the face of the duct or conduit to protect the cable and guide it into the duct or conduit as it is unspoiled from the reel. As the cable is unspoiled from the reel, it shall be inspected for jacket defects or damage. The cable shall not be kinked or crushed and the minimum bend radius of the cable shall not be exceeded during installation. Cable shall be hand fed and guided through each manhole and additional lubricant shall be applied at all intermediate manholes. When practicable, the center pulling technique shall be used to lower pulling tension. That is, the cable shall be pulled from the center point of the cable run towards the end termination points. The method may require the cable to be pulled in successive pulls. If the cable is pulled out of a junction box or manhole the cable shall be protected from dirt and moisture by laying the cable on a ground covering.

800-3.1-1 SERVICE LOOPS

Each fiber optic cable shall have service loops of not less than 3 meters (9.8 feet) in length at each end. The service loops shall be housed in a service loop enclosure.

800-301-4 METALLIC SHEATH GROUNDING

Fiber optic cable with metallic sheath routed in the trench with a power cable shall have the metallic sheath grounded at the cable termination points.

800-3.1-5 SPLICES

No splices will be permitted unless the length of cable being installed exceeds the maximum standard cable length available from a manufacturer or unless fiber optic pigtails are used to connect transmitters, receivers, or other system components for terminations to the fiber. Splices shall be made using the method recommended by the cable manufacturer. Splices shall be housed in a splice enclosure and shall be encapsulated with an epoxy, ultraviolet light cured splice encapsulant or otherwise protected against infiltration of moisture or contaminants. FO splices shall be field tested at the time of splicing. Fusion splices shall have less than 0.2 dB loss.

Mechanical splices shall have less than 0.5 dB loss. There shall be no more than 1 splice per kilometer (0.62 mile) in any of the FO cables excluding terminations. Field splices shall be located in cable boxes. Sufficient cable shall be provided in each splicing location to properly rack and splice the cables, and to provide extra cable for additional splices. Cable ends shall be protected with end caps except during actual splicing. During the splicing operations, means shall be provided to protect the unspliced portions of the cable and its fibers from the intrusion of moisture and other foreign matter.

800-3.1-6 CONNECTORS

Connectors shall be as specified in paragraph FO CONNECTORS. Fibers at each end of the cable shall have jumpers or pigtails installed of not less than 1 meter (3 feet) in length. Fibers at both ends of the cable shall have connectors installed on the jumpers. The mated pair loss, without rotational optimization, shall not exceed 1.5 dB. The pull strength between the connector and the attached fiber shall not be less than 22.7 kilograms (50) pounds.

800-3.1-7 IDENTIFICATION AND LABELING

Identification tags or labels shall be provided for each cable. Markers, tags and labels shall use indelible ink or etching which will not fade in sunlight, or in buried or underground applications. Markers, tags, and labels shall not become brittle or deteriorate for a period of 20 years. Label all termination blocks and panels with cable number or pair identifier for cables in accordance with EIA ANSI/TIA/EIA-606 and as specified. The labeling format shall be identified and a complete record shall be provided to the Owner with the final documentation. Each cable shall be identified with type of signal being carried and termination points.

800-3.1-8 ENCLOSURE SIZING AND CABLE

Termination enclosures shall be sized to accommodate the FO equipment to be installed. Sizing shall include sufficient space for service loops to be provided and to accommodate a neat, workmanlike layout of equipment and the bend radii of fibers and cables terminated inside the enclosure.

800-3.1-9 ENCLOSURE PENETRATIONS

Enclosure penetrations shall be from the bottom and shall be sealed with rubber silicone sealant to preclude the entry of water. Conduits rising from underground shall be internally sealed.

800-3.2 TESTING

800-3.2-1 GENERAL

The Contractor shall provide personnel, equipment, instrumentation, and supplies necessary to perform testing.

800-3.2-2 CONTRACTOR'S FIELD TEST

The Contractor shall verify the complete operation of the data transmission system in conjunction with field testing associated with systems supported by the fiber optic data transmission system prior to formal acceptance testing. Field tests shall include a flux density test. These tests shall be performed on each link and repeated from the opposite end of each link.

800-3.2-2.1 OPTICAL TIME DOMAIN REFLECTOMETER TESTS

Optical time domain reflectometer tests shall be performed using the FO test procedures of EIA ANSI/EIA/TIA-455-59. An optical time domain reflectometer test shall be performed on all fibers of the FO cable on the reel prior to installation. The optical time domain reflectometer shall be calibrated to show anomalies of 0.2 dB as a minimum. Photographs of the traces shall be furnished to the Owner. An optical time domain reflectometer test shall be performed on all fibers of the FO cable after it is installed. The optical time domain reflectometer shall calibrated to show anomalies of 0.2 dB as a minimum. If the optical time domain reflectometer test results show anomalies greater than 1 dB, the FO cable segment is unacceptable to the Owner. The unsatisfactory segments of cable shall be replaced with a new segment of cable. The new segment of cable shall then be tested to demonstrate acceptability. Photographs of the traces shall be furnished t the Government for each link.

800-3.2-2.2 POWER ATTENUATION TEST

Power attenuation test shall be performed at the light wavelength of the transmitter to be used on the circuit being tested. The flux shall be measured at the FO receiver end and shall be compared to the flux injected at the transmitter end. There shall be a jumper added at each end of the circuit under test so that end connector loss shall be validated.

Rotational optimization of the connectors will not be permitted. If the circuit loss exceeds the calculated circuit loss by more than 2 dB, the circuit is unsatisfactory and shall be examined to determine the problem. The Owner shall be notified of the problem and what procedures the Contractor proposes to eliminate the problem. The Contractor shall prepare and submit a report documenting the results of the test.

800-3.2-2.3 GAIN MARGIN TEST

The Contractor shall test and verify that each circuit has a gain margin which exceeds the circuit loss by at least 6 dB.

800-3.2-2.5 PERFORMANCE VERIFICATION TEST AND ENDURANCE TEST

The FO data transmission system shall be tested as a part of the completed airfield lighting control system and Ethernet network system during the Performance Verification Test and Endurance Test.

800-3.1 TRAINING

800-3.3-4 GENERAL

The Contractor shall conduct a training course for designated personnel in the maintenance of the FO system. The training shall be oriented to the specific system being installed under this specification. The Contractor shall furnish training materials and supplies.

800-3.3-2 MAINTENANCE PERSONNEL TRAINING

The system maintenance course shall be taught at the project site after completion of the endurance test for a period of 1 training day. A maximum of five personnel designated by the Owner will attend the course. A training day shall be 8 hours of classroom or lab instruction, including two 15-minute breaks and excluding lunchtime during the daytime shift in effect at the facility. Training shall include:

a. Physical layout of the system and each piece of hardware.

b. Troubleshooting and diagnostics procedures.

c. Repair instructions.

d. Preventative maintenance procedures and schedules.

e. Calibration procedures. Upon completion of this course, the students shall be fully proficient in the maintenance of the system.

METHOD OF MEASUREMENT

800-4.1

The length of 1-12 strand multi-mode fiber optic cable installed in the existing conduit or cable installed in the cable chase to be paid for, shall be the number of lineal feet measured in place, completed and ready for operation, and accepted as satisfactory, and no extra quantity will be allotted for any vertical distances or the required cable slack. There will be a separate measurement made for each cable installed in conduit.

The cost of routing the fiber optic cable through duct, troughs, cable chase, terminations, patch panels, testing and all connections shall be included in the unit price bid for the cable.

BASIS OF PAYMENT

800-5.1

Payment will be made under:

ITEM AT800178 FIBER OPTIC CABLE – PER LINEAR FOOT.

ITEM 800816 - RGL SYSTEM

DESCRIPTION

800816-1.1

This item shall include the furnishing and installation of RGL system in accordance with this specification, the referenced specifications, the applicable Federal Aviation Administration (FAA) Advisory Circular and the details shown on the Drawings. This item shall include the installation of elevated runway guard lights (RGL) at the locations shown on the Drawings. Included shall be the installation of new RGL and isolation transformers, associated control devices, and all incidentals necessary to provide a complete installation to an operating condition, including testing, to the satisfaction of the Resident Engineer.

SUBMITTALS

800816-2.1 GENERAL.

Before any electrical materials are ordered, the Contractor shall furnish the Resident Engineer a list of the materials and equipment to be incorporated in the work. This list shall include the name of each item, the Federal Aviation Administration specification number, the manufacturer's name, the manufacturer's catalog number, and the size, type and/or rating of each item, catalog cuts, test data, fuse curves, outline drawings, nameplate drawings, wiring diagrams, and schematic diagrams.

After the list has been approved by the Resident Engineer and prior to installation, the Contractor shall assemble the equipment and materials at a single location, on-site, and request inspection by the Resident Engineer. None of the equipment or materials, other than duct or conduit, may be used on the job until such an inspection has been completed.

In the case that more than one manufacturer is proposed for a single item, the Resident Engineer will select the specific item he feels best fulfills the requirements of the specification, and it shall be the responsibility of the Contractor to furnish that item and none other.

All test results shall be submitted to the Resident Engineer for review and approval.

800816-2.2 APPROVAL.

Airport lighting equipment and materials covered by FAA specifications shall have prior approval of the Federal Aviation Administration, Airport Service, Washington, DC 20591, and shall be listed in the current edition of FAA Advisory Circular 150/5345-53, Airport Lighting Equipment Certification Program. Alternatively, items shall be certified by ETL as conforming to applicable FAA specifications, as approved by the Resident Engineer. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when required by the Resident Engineer.

The following documents, of the issue in effect on the date of application for qualification, are applicable to the extent specified:

Item	Specification	Advisory Circular
Runway Guard Light, Elevated	L-804	AC 150/5345-46

Transformer, Isolation	L-830	AC 150/5345-47
Light base, load bearing	L-868	AC 150/5345-42
Light base, non-load bearing	L-867	AC 150/5345-42

All FAA Advisory Circular referenced in this specification refer to the most recent edition in circulation.

800816-2.3 LIGHT BASE AND LIGHT INSTALLATION AND ALIGNMENT TOOL

The tolerance requirements for location, elevation and orientation of all light fixtures is of critical importance and must be maintained. In order to do so the light base and lights shall be installed using an installation and alignment tool. This tool shall be capable of achieving the final alignment specified and shall be of sufficient strength to support the light base during placement and compaction of concreted around the base. The Contractor shall submit to the Resident Engineer the proposed installation and alignment tool for approval. Upon approval, the Contractor shall procure a sufficient number of these tools to use in the installation process. No light base or light fixture shall be installed without using an approved installation and alignment tool.

MATERIALS

800816-3.1 ELEVATED RUNWAY GUARD LIGHTS (RGL).

The RGL shall be Type L-804, yellow, class 2, 6.6 amperes constant current fixture, with lamp by-pass and L-823 type connectors, and shall be provided with instruction manual. These lights shall be provided complete with compatible type transformers meeting the requirements of AC 150/5345-47 Type L-830 with the appropriate wattage consistent with the type of lamps provided. Each fixture shall be numbered with weatherproof plastic-type labels in accordance with the numbering shown on the drawings or approved by the Resident Engineer. The lamp(s) shall be as required by the manufacturer to meet the new standards for RGL. The new elevated RGL light fixtures, isolation transformers and controllers shall be compatible with the existing Runway 16/34 RGL system.

800816-3.2 TRANSFORMERS.

Transformers for RGL shall meet the requirements of AC 150/5345-47 Specification for Isolation Transformers for Airport Lighting Systems, Type L-830 (60 Hz). Primary and secondary amperes for RGL shall be 6.6/6.6 amperes. The wattage of the transformer for the RGL shall be as recommended by the manufacturer. Each transformer shall be clearly marked indicating its wattage so as to not be confused during installation. Transformers shall have L-823 type connectors.

800816-3.3 LIGHT BASE TRANSFORMER HOUSING AND JUNCTION BOX.

Light Base Transformer Housings and Junction Boxes shall meet the requirements of AC 150/5345-42, Specification for Airport Light Base and Transformer Housings, Junction Boxes, and Accessories. Type L-867, Class I, Size B, shall be used for elevated RGL located in areas not subject to aircraft loading (shoulder pavements or non-paved areas). Type L-867 bases, Class I, Size D shall be used for junction boxes in areas not subject to aircraft loading, as shown on the Drawings. Each base shall be supplied with conduit hubs.

800816-3.4 BLANK COVER PLATES.

Blank base cover plates for light bases/transformer housings shall be A-36 galvanized steel checker-plate ½-inch thick in areas not subject to aircraft loading, and 3/4-inch thick in areas subject to aircraft loads.

Diameter and bolt pattern shall be compatible with the light base/transformer housing to be covered.

CONSTRUCTION METHODS

800816-4.1 PHASING AND INTERRUPTIONS.

All existing electrical equipment and lighting systems not included in the phase of work being performed must be kept in operation, unless prior approval of the Resident Engineer has been received and as otherwise specified below and on the Drawings.

The Contractor may use salvaged materials for temporary construction where required. The permission for temporary work and using salvaged materials shall be obtained from the Resident Engineer.

Refer to the special provisions of the specifications for notification requirements and other information regarding work interruptions due to airport operational requirements or Contractor anticipation for exceeding the limitations described in the above paragraph.

800816-4.2 RGL LIGHT BASE AND TRANSFORMER HOUSING INSTALLATION.

All light bases shall be installed using an approved installation and alignment tool. Light bases shall be properly oriented and leveled at the proper elevation and shall be held securely in place so that during the placement of concrete the base does not become misaligned. See Section 125-4.2.2 and the Drawings for tolerance information. All concrete shall be thoroughly consolidated around the base using mechanical vibrating equipment.

800816-4.3 RGL LIGHT FIXTURE INSTALLATION.

The light fixtures shall be installed in accordance with the requirements and tolerances specified in AC 150/5345-46, as recommended by the manufacturer, and as specified on the Drawings and herein. See Drawings for installation tolerances.

800816-4.4 RGL CABLE AND CONDUIT INSTALLATION.

Where home run cable for dedicated RGL circuit(s) are collocated with other airfield lighting circuits in duct bank, it is preferable that a spare duct be used. Any place where new RGL cable must share a duct with other lighting circuit cables, new cable for the existing circuits shall be pulled together with the new RGL cable for those particular duct segments. Any outage of existing lighting circuits shall be carefully coordinated with the Resident Engineer.

The Contractor shall connect the proposed RGL circuit inside the high voltage manhole. The Contractor shall supply RGL control equipment that is compatible with the existing vault facilities.

800816-4.5 REMOVALS.

Electrical removals shall be done as approved by the Resident Engineer. Objects, surfaces and items including underground utilities designated to remain shall be carefully avoided and left undisturbed. Any damage to these items shall be immediately corrected by the Contractor to the satisfaction of the Resident Engineer.

All existing cables and conduit to be removed become the property of the Contractor to be promptly removed from the airport property. Temporary storage of these items on airport property shall be subject to the approval of the Resident Engineer. Any items to be salvaged shall be carefully removed and delivered to the Airport's maintenance yard and stockpiled in a neat orderly fashion, as directed by the Resident Engineer.

INSPECTION, TEST, AND WARRANTY

800816-5.1 VISUAL EXAMINATION.

The most important of all inspection and test procedures is thorough visual inspections. Visual inspections shall be made frequently during installation, at completion of installation, and before energizing the circuits. A careful visual inspection can reveal defects that can be corrected prior to acceptance tests and energization. Serious damage may occur if defects are subjected to electrical tests or energization. Visual inspections shall include:

a. Verify proper location, marking and height of fixtures, and that installation is in accordance with manufacturer's instructions and contract design documents.

b. Check for proper anchorage, physical damage, dirt and debris both interior and exterior to the RGL. Verify that nuts, bolts, washers, gaskets, etc., have been installed and tightened in accordance with the manufacturer's instructions.

c. Verify correct wattage of isolation transformer and lamps. Tighten all electrical connections. Check for proper size and installation of L-823 connectors, and for grounding wires and connections.

d. Verify by operational test that RGL aiming is acceptable for anticipated taxi operations.

e. Check for any safety hazards.

f. Verify specific requirements listed herein for individual items. While all equipment manufactured under specifications pass strict factory tests prior to shipment, it shall be inspected for shipping damage immediately upon receipt.

800816-5.2 CABLE CONNECTOR AND ISOLATING TRANSFORMER INSPECTION.

Transformers shall be supplied with factory installed molded connectors for the primary and secondary cable leads. During installation, these items shall be inspected to determine the following:

a. The mating surfaces of molded connectors should be clean and dry. Factory installed caps shall remain in place until connectors are to be plugged together. Contractor shall tape the connectors to hold them in place and moisture/debris from entering the splice.

b. The connectors are completely plugged together. After initial plugging, trapped air pressure may partially disengage the plug and receptacle. If this happens, wait a few seconds and push them together again. Apply two or three turns of tape to hold them in place.

c. The cables must not be cut by shovels, kinked, crushed by vehicle wheels, bruised by rocks, or damaged in any way during handling and installation.

d. The cables and conduit must be buried to the specified depth below finished grade and all other detailed requirements of the installation specification must be accomplished.

e. All cables shall be placed in conduit and must be separated by the specified distance.

f. For temporary direct buried cables, screened material must be placed under and over the cables, and rocks or pebbles must not contact the cables.

g. The cables must not be bent sharply where they enter (or leave) a conduit, and must be supported properly by tamped ground so future settling cannot cause sharp bends.

800816-5.3 ELECTRICAL TESTS ON CABLE.

Cables installed in duct shall be tested before and after installation in duct. Each underground circuit shall be subjected to the following tests. See L-108 for specific electrical tests on cable.

800816-5.4 ELECTRICAL TESTS OF REGULATORS.

The supply voltage and input and output current shall be checked at the regulator to see that they operate properly and that regulators are not overloaded due to shorts to ground or excessive leakage.

a. With load disconnected, energize the regulator once, and watch the open-circuit protector to see that it de-energizes the regulator within 2 or 3 seconds.

800816-5.5 LIGHTING FIXTURES.

An inspection shall be made to determine that the color, quantity, and locations of light are in accordance with the installation drawings. Each light shall be inspected to determine that it is operable, glass is not broken or cracked, correct lamps are installed, and it has been properly leveled and aimed, in accordance with technical orders and manufacturers instructions, where applicable.

800816-5.6 RGL OPERATIONAL TEST.

Perform operational tests on the RGL, by operating lights on each brightness step for not less than one minute, to verify proper pulsing and pulse duration, intensity control, vertical adjustment, remote control, and any other required operational feature. If monitoring is provided, verify that proper status/alarm indications are obtained in the control tower. All RGL fixtures, regulators and control equipment shall be compatible.

800816-5.7 MISCELLANEOUS COMPONENTS.

Other components not listed above but relating to the system shall be checked for compliance with the installation drawings.

800816-5.8 FINAL ACCEPTANCE TESTS.

After components and circuits have been inspected, as specified in the preceding paragraphs, the entire system shall be inspected as follows:

a. Operate each switch for the new and modified lighting circuits from the remote control position (ATCT) so that each switch position is reached at least twice. During this process, all lights and vault equipment shall be observed to determine that each switch properly controls the corresponding circuit.

b. Repeat the above test using the local control switches on the regulators.

c. Each lighting circuit shall be tested by operating it continuously at maximum brightness for at least 6 hours. Visual inspection shall be made at the beginning and end of this test to determine that the correct number of lights are operating at full brightness. Dimming of some or all of the lights in a circuit is an indication of grounded cables.

d. In addition to the above, all equipment shall be subjected to any and all performance tests specified in the manufacturer's instructions.

800816-5.9 GUARANTEE.

All equipment furnished and work performed under the Contract Documents shall be guaranteed against defects in materials or workmanship for a period of one (1) year from the date of final acceptance. This guarantee does not replace any responsibility for errors or omissions as set forth in state law. Any long-term warranties issued or offered by manufacturers for items of equipment shall be turned over to the Airports Authorities.

800816-5.10

Any failure of equipment or work due to defects in materials or workmanship shall be corrected by the Contractor at no cost to the owner.

800816-5.11

The Contractor shall ascertain that all lighting system components furnished by him (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any incompatible components furnished by this Contractor shall be replaced by him at no additional cost to the Airport with a similar unit approved by the Resident Engineer (different model or manufacturer) that is compatible with the remainder of the airport lighting system.

800816-5.12

In case the Contractor selects to furnish airport lighting equipment requiring additional wiring, transformers, adapter mountings, etc. to those shown on the drawings and/or listed in the specifications, any cost for those items shall be incidental to the equipment cost. All substitutions shall be approved by the Resident Engineer.

800816-5.13

The Contractor installed equipment (including FAA approved) shall not generate any electromagnetic interference in the existing and/or new communications, weather and air traffic control equipment. Any equipment generating such interference shall be replaced by the Contractor at no additional cost with equipment meeting applicable specifications and not generating any interference.

METHOD OF MEASUREMENT

800816-6.1

The quantity to be paid for under this item shall be the materials installed separately or in combination as specified, and shall be measured per each completed unit in place , tested and accepted by the Resident Engineer, and ready for operation.

The quantity for 1/C # 8, 5KV cable and GRS conduit shall be measured separately and shall be paid under items 108 and 110.

BASIS OF PAYMENT

800816-7.1 GENERAL

Payment will be made at the contract unit price for each completed and accepted installation. This price shall be full compensation for furnishing all materials including elevated RGL light fixture, transformer, light base, concrete, epoxy encasement, testing and other materials as specified below and as required by the Drawings and these specifications, for all preparation, assembly, and installation of these materials, for all removals associated with the installation, and for all labor, equipment, tools and incidentals necessary to complete each installation specified below.

Payment will be made under:

ITEM AR800816 L-804 RGL ELEVATED, BASE MOUNTED – PER EACH.

FEDERAL SPECIFICATIONS REFERENCED IN ITEM L-125

Number	Title
WW-C-581	Conduit, Metal, Rigid; and Coupling, Elbow and Nipple Electrical Conduit: Zinc-Coated

FAA SPECIFICATIONS REFERENCED IN ITEM L-125

Number	Title
AC 150/5345-42	Specification for Airport Light Base and Transformer Housings, Junction Boxes and Accessories
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Isolation Transformers for Airport Lighting Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program (current edition)

ITEM 910915 – REMOVE ROADWAY SIGN

DESCRIPTION

910-1.1

This item consists of the removal and disposal of airport owned roadway signs.

CONSTRUCTION MEHTODS

910-2.1

This work shall consist of the removal of existing airport owned roadway signs. Trenches or voids resulting from the removal shall be backfilled and compacted in accordance with P-152, Excavation and Embankment for areas in proposed turf or backfilled and compacted in accordance with Section 701-2.7 and 701-3.7 for areas under proposed pavements. Roadway signs shall be disposed of by the Contractor off Airport property unless otherwise directed by the Engineer.

Trench backfill of removal items shall be incidental to the removal item.

METHOD OF MEASUREMENT

910-3.1

The quantity of roadway sign removals to be paid for shall be the number, per each, of signs satisfactorily removed and disposed of off-site.

BASIS OF PAYMENT

910-4.1

Payment shall be made at the contract unit price for REMOVE ROADWAY SIGN, per each. This price shall be full compensation for furnishing all materials, labor, equipment, and necessary incidentals to complete the item as shown on the plans and as specified herein.

Payment will be made under:

ITEM AR910915 REMOVE ROADWAY SIGN – PER EACH.

IDA POLICY MEMORANDUMS

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

July 31, 2004 | Springfield | Number: **87-3**

TO: CONSULTING ENGINEERS

SUBJECT: MIX DESIGN, TEST BATCH, QUALITY CONTROL, AND ACCEPTANCE TESTING OF PCC PAVEMENT MIXTURE

I. SCOPE

This Policy Memorandum addresses the Mix Design, Test Batch, Quality Control and Acceptance Testing of PCC pavement mixtures specified by Item 501, Portland Cement Concrete Pavement, in accordance with the Standard Specifications for Construction of Airports, effective January 1985, Special Provisions, and policies of the Division of Aeronautics.

II. MIX DESIGN

Prior to the start of paving operations and after approval by the Division of Aeronautics (IDOA) of all materials to be used in the manufacture of the concrete, the contractor shall provide a preliminary mix design(s) for evaluation at the Test Batch. The mix design shall indicate saturated surface dry batch weights per cubic yard for each material component. In addition, each material component, including chemical admixtures, shall be identified by the IDOT material code number, the IDOT producer code number, and the producer name and location. Saturated surface dry and oven dry specific gravities, as well as absorption values, for each proposed aggregate to be used in the mix shall be indicated on the mix design. When requested in writing by the contractor, the Engineer will recommend a preliminary mix design for evaluation at the Test Batch.

The Mix Design and the contractor's approved Job Mix Formula (JMF) will be issued by our office subject to verification of the mix by strength tests obtained from mix prepared from a Test Batch(es) according to the approved JMF. The water-cementitious ratio established from the approved test batch is the maximum water-cementitious ratio allowed during production paving. Whether the contractor selects his own mix design or chooses to use the mix design recommended by the Division, the contractor is responsible for the mix design, as well as the manufacture and placement of the mix.

III. TEST BATCH

At least 28 days prior to the start of production, the contractor and/or producer shall prepare a Test Batch under the direction of the Engineer. The Test Batch shall be prepared at the concrete plant proposed for use in the production of the concrete mix for the project and shall be in accordance with the approved Job Mix Formula (JMF). When approved by the Engineer, the Test Batch may be prepared at a different plant provided that the same materials specified in the JMF are used. The plant shall have been

surveyed and approved by the Engineer prior to preparation of the Test Batch. As required by these Special Provisions, the contractor shall provide Quality Control for production of the concrete. The contractor shall have his Quality Control Manager and a representative of the contractor familiar with the paving operation, present at the Test Batch preparation. The Test Batch shall be prepared as follows:

A. Proportioning

Prior to preparation of the mix, the Proportioning Technician shall perform a minimum of two (2) gradation analysis and two (2) moisture tests on each aggregate used. The gradation analysis shall be reported on form AER M-12, Side 1. From this data, the JMF shall be adjusted for moisture, in accordance with form AER M-12, Side 2. A microwave type moisture probe (or equal) may be allowed to adjust proportions for sand moisture when approved by the Engineer.

B. Preparation of the Mix:

1.) Prepare a Test Batch that is at least one-half (1/2) the manufacturer's rated capacity of the mixing drum (in cubic yards). The Test Batch shall be prepared with the approved JMF, adjusted for moisture.

2.) Mixing requirements shall be:

a.) Central Mix Plant: Mixing time shall be a minimum of 90 seconds. If transit mixer trucks are used to transport the mix, the mix shall be agitated, after mixing, at 2-5 RPM for the approximate time anticipated between batching at the plant and deposit of the concrete in the forms. If non-mixing trucks are used to transport the mix, the mix shall remain in the central mixer with no mixing or agitation for the approximate time anticipated from when the water contacts the cement and deposit of the concrete in the forms.

b.) Transit Mix Plant: Mixing shall consist of 70-100 Revolutions @ 5-16 RPM. After initial mixing, agitate mix at 2-5 RPM for the approximate time anticipated between batching at the plant and deposit of the concrete in the forms.

3.) Slump and Air: If the air content after aging is 6.0%±1.5% and provides the required workability for paving, the contractor will make cylinders for testing at 3, 7, 14 and 28 days. If the slump is below that required for placement, the contractor may add additional water to increase the slump as necessary up to the maximum water/cement ratio (or water/cementitous material) ratio listed herein. Additional mixing of at least 40 Revolutions will be required with each addition of water. Cylinders and/or beams will be made for testing at 3, 7, 14 and 28 days when the slump is obtained, at 6.0% ± 1.5% air content. The water/cement ratio (or water/cementitious material) ratio cannot exceed 0.44 based on actual batch weights when 501-3.6(A) proportions is specified, and 0.42 when 501-3.6(B) proportions is specified.

4.) The Proportioning Technician shall complete Form AER M-7, Plastic Concrete Air, Slump and Quantity and Form AER M-6, Concrete Moisture Determination

(Adjusted Oven Dry Method), to be given to the Resident Engineer after completion of the Test Batch. The Flask Method, Dunagan Method, and Pycnometer Jar Method are also acceptable test methods for the determination of aggregate moisture.

5.) The Resident Engineer and contractor shall complete Form AER M-4, Concrete Plant Production, Mix Verification.

6.) The concrete test cylinders and/or beams shall be tested at 3, 7, 14 and 28 days to establish a growth curve of concrete strength vs. age. The compressive strength shall be at least 800 psi, over the specified strength, at 28 days. Flexural strength concrete shall have at least 100 psi over the specified strength at 28 days.

IV. QUALITY CONTROL

Quality control testing is the responsibility of the contractor and must be performed by qualified testing personnel approved by the Engineer. The proportioning technician shall be PCC Level II certified by the testing firm must perform his or her duties on a full time basis whenever concrete is produced for an IDOA project.

The proportioning technician shall perform the duties as outlined in the Division of Highways latest Manual of Instructions for Concrete Proportioning and Testing and as outlined as follows. These duties as outlined are not necessarily all inclusive and may include other duties as required by the specifications, special provisions, etc.

If a QC or QA test for slump, air content, or mix temperature fails to meet the requirements of the specifications the contractor shall reject the batch. In the case of a failing test of the air content, the contractor may make adjustments to the concrete to bring the air content into compliance with the specification. Adjustments are subject to the time limitations of 1 hour from time of batching when the concrete is transported in mixer trucks. Time limitations shall be increased by 30 minutes when the concrete mixture contains a retarding admixture. When concrete has been rejected due to failing test results, the contractor shall continue to run tests for the failed test parameter until at least 3 consecutive passing tests are achieved. This testing is in addition to the normal QC and QA testing.

A. Duties of the Proportioning Technician:

1.) Check and maintain shipment tickets of each material used in the manufacture of the concrete. These tickets are to be given to the Resident Engineer for each day's production of concrete. The aggregates shall indicate the quality on the ticket and a statement that the coarse aggregate is a non “D” cracking (freeze-thaw rated by IDOT) aggregate. In lieu of having these statements on each ticket, the contractor may use the Division’s Aggregate Certification of Compliance form, or supply the Resident Engineer with a certification letter indicating the stone quality and statement of non “D” cracking compliance.

2.) Inspect and maintain proper storage of all aggregates and materials daily.

3.) Perform at least one (1) sieve analysis for each aggregate daily.

4.) Inspect all weighing or measuring devices daily.

5.) Twice daily check the actual weighing or measuring of aggregates, cement, water, and admixtures for conformance to adjusted batch proportions. Record data on Form AER M-4, Concrete Plant Production, Mix Verification, and calculate the water/cement (or water/cementitious material) ratio.

6.) See that the volume of the batch does not exceed the allowable capacity of the mixer and that the proper mixing time is used.

7.) Make at least two (2) moisture tests of each aggregate daily and correct batch weights as required.

8.) Adjust the dosage rates of the admixtures as required to meet concrete temperature changes and paving conditions.

9.) Complete AER M-7, Concrete Air, Slump and Quantity, and Form AER M-4, Concrete Plant Production, Mix Verification for each day's production and deliver same to the Resident Engineer at the end of the day for which the data pertains. Provide to the Resident Engineer load tickets for all aggregates, cement, and admixtures used in the mix.

The Resident Engineer will also be required to visit the plant twice daily on a random basis to record actual batch weights and complete Form AER M-4, Concrete Plant Production, Mix Verification. Forms AER M-4, M-7, and M-12 shall be submitted to the R.E. on a daily basis and then faxed by the R.E. to the Division of Aeronautics daily. (FAX is (217) 785-4533.)

V. ACCEPTANCE TESTING

As required by Item 501-5.3 of the Standard Specifications, acceptance and payment of the final pavement is based on the strength of either cylinders or beams taken at random during the time of construction. The pavement shall be divided into Lots of 1200 cubic yards with sublots of 300 cubic yards each. One random sample (two cylinders or one beam) shall be obtained from each sublot for testing at 28 days to calculate final payment. At the time a sublot sample is taken, one (1) slump and one (1) air test shall be taken.

In addition to the above described sample frequency, three (3), seven (7) and fourteen (14) day tests shall be taken. The Engineer may require additional tests to maintain Quality Control.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 87-3, dated January 1, 2004.

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004 | Springfield | Number: **87-4**

TO: CONSULTING ENGINEERS

SUBJECT: DETERMINATION OF BULK SPECIFIC GRAVITY (d)
OF COMPACTED BITUMINOUS MIXES

A. SCOPE. This method of test covers the determination of the bulk specific gravity and the percent air, of core samples from compacted bituminous mixtures using a saturated surface-dry procedure.

B. DEFINITIONS.

1. Bulk Specific Gravity (G_{sb}) or density is the weight per unit volume (gms/cc) of a mixture in its existing state of consolidation. The volume measurement for this specific gravity will include the volume of all the aggregate, asphalt, and air spaces (voids) in the aggregate particles and between the aggregate particles.

2. Theoretical Maximum Specific Gravity (G_{mm}) ASTM 2041 is the weight per unit volume (grams/cc) of a mixture assuming complete consolidation; i.e., all the air spaces (voids) between the aggregate particles are eliminated.

3. Percent Density is a measure of the degree of compaction in relation to the Theoretical Maximum Specific Gravity.

4. Percent Air is a measure of the air voids in the compacted pavement.

C. APPARATUS.

1. Balance - The balance shall be accurate to 0.1 gm throughout the operating range. It may be mechanical or electrical and shall be equipped with a suitable suspension apparatus and holder to permit weighing of the core in water while suspended from the balance. If the balance is a beam type, it shall be set up so that the core is placed in the basket that is suspended from the zero (0) end of the balance arm.

2. Water bath - The container for immersing the core in water while suspended from the balance shall be equipped with an overflow outlet for maintaining a constant water level. This water bath should be large enough to handle full-depth cores. When testing several cores at the same time, a dish-pan, sink or suitable container may be used for soaking.

D. PROCEDURE.

1. Prior to testing, cores shall be sorted on a flat surface in a cool place. The sample(s) shall be brushed with a wire brush and/or other suitable means, to remove all loose and/or foreign materials, such as seal coat, tack coat, foundation material, soil, paper, and foil, prior to testing.

2. If a core contains binder and surface or multiple lifts, the lifts shall be separated. This may be done in the following manner:

   a. Mark the separation line between the two lifts.

   b. Place the core in a freezer for 20-25 minutes.

   c. Place a 2 or 3-inch wide chisel on the separation line and tap with a hammer. Rotate the core and continue this process until the core separates. Brush loose pieces with a wire brush if needed.

   d. Allow 2-3 hours for the core to return to ambient temperature before proceeding.

3. Prepare the water baths for soaking and weighing with water at 77^{o} F. Water baths should be maintained at this temperature throughout testing. Saturate the cores by submerging in the water for a minimum of 20 minutes.

4. With the balance and water bath properly assembled and zeroed, suspend the sample from the balance and submerge it in the water bath. The core must be placed with the original top and bottom in a vertical position. If necessary, add sufficient water to bring the water level up to the overflow outlet. Permit any excess to overflow. Read and record the Saturated Submerged Weight. Designate this weight as (C).

5. Remove the core from the water bath and blot the excess water from the surface of the core with an absorbent cloth or other suitable material. This must be done quickly to prevent the internal water from escaping.

6. Place the core on the balance and read and record the Saturated Surface-dry Weight in air. Designate this weight as (B).

7. Place the core in a tared pan and dry in an oven. When the core is dry, (less than 0.5 gm loss in one hour) record the weight and subtract the pan weight. Designate this weight as (A).

8. The following calculation is used to determine the Bulk Specific Gravity of the core.

$$G_{sb} = \frac{A}{B-C}$$

G_{sb} = Bulk Specific Gravity
A = Oven dry weight
B = Saturated surface-dry weight
C = Saturated submerged weight

E. PERCENT DENSITY. The following calculation is used to determine the percent density of the core:

$$\% \text{ Density} = 100 \times \frac{G_{sb}}{G_{mm}}$$

G_{sb} = Bulk Specific Gravity
G_{mm} = Theoretical Maximum Gravity*

Note: The Theoretical Maximum Gravity (G_{mm}) is determined from the mix design until current Vacuum Pycnometer test are available.

F. PERCENT AIR. To calculate the percent air, use the following formula:

% Air = 100 - % Density

G. WEIGHT PER SQUARE YARD OF COMPACTED MIXTURE. The actual weight per square yard of a compacted mixture can be calculated by using the Bulk Specific Gravity (G_{sb}). The volume of a square yard of pavement one (1) inch thick is 0.75 cubic foot. Taking the weight of a cubic foot of water as 62.37 pounds, one square yard of compacted material, one (1) inch thick weighs:

Pounds Per Sq. Yd. (1" thick) = $0.75 \times 62.37 \times G_{sb}$

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 87-4 effective January 1, 1994.

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004 | Springfield | Number: **90-1**

TO: CONSULTING ENGINEERS

SUBJECT: Resampling and Retesting of PCC Pavement

I. PURPOSE

1. This Policy Memorandum outlines the procedure for resampling and retesting of individual Lots of PCC Pavement for the determination of final Price Adjustment as permitted by the Special Provisions for Item 501 Portland Cement Concrete Pavement (Plain and Reinforced).

II. RESAMPLING AND RETESTING.

1. Ifthe contractor should request the resampling and retesting of a LOT, he must notify the Engineer in writing within 24 hours of receiving the written test results and payment results for the LOT in question. The entire LOT must be resampled (no selective resampling of individual sublots will be allowed) and the contractor is not allowed to take additional cores. Once approval to resample has been granted, the Engineer will select random locations from each SUBLOT of the LOT in question and direct the contractor to drill two (2) 4 inch or 6 inch diameter cores from each location. The cores shall be obtained, cured and tested in accordance with ASTM C 42, Obtaining and Testing Drilled Cores and Sawed Beams of Concrete. The Engineer will take possession of the cores once they have been cut by the contractor.

III. CALCULATION FOR PRICE ADJUSTMENT

1. When Compressive Test Specification (501-3.6(A) Proportions) is specified. The two (2) specimens from each SUBLOT shall be averaged to constitute one SUBLOT sample. The Percent Within Limits (PWL) for the LOT shall then be calculated in accordance with Item 501-5.3, Price Adjustment, of the Special Provisions using the sampled core compressive strengths and the Compressive Test formula. The final Price Adjustment shall be based on the PWL calculated using the sampled core compressive strengths. The test results of the resampled pavement are final. All costs associated with resampling, including, but not limited to testing, curing, and coring the concrete samples shall be borne by the contractor, regardless as to whether the test results increase or decrease calculated payment quantity of concrete pavement.

2. When Flexural Test Specification (501-3.6(B) Proportions) is specified. The two (2) specimens from each SUBLOT shall be averaged to constitute one SUBLOT sample. The SUBLOT samples shall then be averaged to obtain a LOT average. In order for the contractor to increase concrete payment quantity back to 100%, the LOT average shall

be at least 6500 psi, and no individual SUBLOT sample shall be less than 6000 psi. Both the LOT average and SUBLOT sample strength requirements must be met in order for the concrete payment quantity to change back to 100%. If both requirements are not met, then the original concrete payment quantity calculated based on the Percent Within Limits (PWL) as outlined in 501-5.3, Price Adjustment, of the Special Provisions shall still apply. The test results of the resampled pavement are final. All costs associated with resampling, including, but not limited to testing, curing, and coring the concrete samples shall be borne by the contractor, regardless as to whether the test results increase or decrease calculated payment quantity of concrete pavement.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 90-1, dated January 1, 2001

Illinois Department of Transportation
Division of Aeronautics
Materials Section

POLICY MEMORANDUM

January 1, 2004	Springfield	Number 95-1

TO: CONSULTING ENGINEERS

SUBJECT: FIELD TEST PROCEDURES FOR MIXER PERFORMANCE AND CONCRETE UNIFORMITY TESTS

I. SCOPE

These methods describe the procedures for obtaining and testing representative samples of fresh concrete in the field to determine the consistency and mixer efficiency of stationary mixers at different mixing time periods.

The concrete produced during the mixing time investigation and not used in the test program may be incorporated in the project provided it conforms to the Standard Specifications for Construction of Airports.

A maximum of two mixing times shall be considered by the Department.

The contractor shall provide all of the necessary equipment and personnel to perform the tests and the Department will observe the testing.

II. APPARATUS REQUIRED

a. Three (3) air meters conforming to the requirements of ASTM C231 or ASTM C173.

b. Three (3) slump cone kits conforming to ASTM C143.

c. One (1) No. 4 sieve having a minimum screen area of 2 sq. ft. The sieve shall conform to the requirements of AASHTO M92.

d. One (1) platform scale graduated in tenths of a pound having a capacity sufficient to perform tests herein after specified.

e. One (1) hydraulic or mechanical testing machine conforming to the requirements of the specified testing method for the project (ASTM C39 or ASTM C78).

f. Flexural strength specimen forms as required. The forms shall be nominally 6x6x30 inch. Means shall be provided for securing the base plate firmly to the mold. The inside surfaces of the mold shall be smooth and free from holes, indentations, or ridges. The sides, bottom, and ends shall be at right angles and shall be straight and true so that the specimens will not be warped. Maximum variation from the nominal cross-section shall not exceed 1/8 inch. The assembled mold and base plate shall be lightly coated with mineral oil or other approved form release oil before use. Compressive strength specimens shall be 6x12 inch and prepared in accordance with ASTM C31.

g. Sufficient water tanks for curing specimens as required by ASTM C31.

h. Small tools such as shovels, scoops, buckets, etc., and water shall be furnished, as required.

III. MIXER

The mixer for which the mixing time is to be evaluated shall conform to the applicable sections of the Standard Specifications for Construction of Airports.

IV. MIXING TIME REQUIREMENTS

The minimum mixing time to be evaluated shall be specified in the Standard Specifications for Construction of Airports.

V. PROCEDURE

A minimum of ten (10) batches per drum shall be tested and evaluated for each original reduced mixing time request. Check tests shall consist of three (3) batches.

If the request is for a new, twin drum mixer, ten (10) batches shall be tested for the first drum and three (3) for the second drum.

Check tests are required if the mixer is moved, major maintenance performed, or if the source or type of aggregate has changed. A minimum frequency of check tests shall be one (1) per year.

a. Mixing Time

The mixing time and batch size to be evaluated shall be proposed by the contractor. The mixing time shall begin when all solid materials are in the mixing drum. The mixer timer shall register or indicate accurately the mixing time and a tolerance of two (2) seconds will be permitted.

If approved by the Engineer, minor adjustments in admixture dosage and water content will be allowed to account for weather conditions, provided that the maximum w/c ratio is not exceeded.

b. Sampling

At the conclusion of the mixing cycle, the mixer shall be discharged and appropriate samples obtained from the first, middle, and last third portions of the batch. Any appropriate method may be used, provided the samples are representative of the respective portions and not the very ends of the batch.

As an alternative, the mixer may be stopped, and the samples removed by any suitable means at equally spaced points from the front to the back of the drum.

c. Testing.

1. Each third portion of the batch shall be tested simultaneously. The Contractor shall provide sufficient personnel to meet this requirement. The Contractor personnel performing the testing shall be Level I PCC Technicians or Concrete Testers. However, a Level I PCC Technician shall be provided to supervise the Concrete Tester.

2. From each third portion of the batch the mass (weight) of the concrete in one air meter measuring bowl shall be determined.

3. The air content of each third portion of the batch shall be determined according to ASTM C231 or ASTM C173. The air content shall be the arithmetic average of two (2) tests from each third portion of the batch.

4. The slump of each third portion of the batch shall be determined according to ASTM C143. The slump shall be the arithmetic average of two (2) tests from each third portion of the batch.

5. Flexural strength specimen(s) (two (2) breaks required) or two (2) compressive strength specimens shall be prepared from each third portion of the batch according to ASTM C31. Flexural strength specimen(s) (two (2) breaks required) shall be tested according to ASTM C78 at seven (7) days of age. Compressive strength specimens shall be tested according to ASTM C39 at seven (7) days of age.

6. The contents from the weighed air meter measuring bowl shall be washed over a No. 4 sieve. Shake as much water as possible from the material retained on the sieve and then weigh the material. The coarse aggregate content (portion of mass (weight) of sample retained on a No. 4 sieve), expressed as a percent, shall be calculated.

VI. CONCRETE UNIFORMITY REQUIREMENTS

a. Test results from each third portion of the batch shall be compared to one another according to Table 1. Each batch shall be evaluated individually.

b. Mixer performance tests consisting of ten (10) batches: If more than seven (7) tests out of the total or more than three (3) in any one criteria are not in compliance with the uniformity requirements (air content, slump, coarse aggregate content, and strength), a reduced mixing time will not be granted.

c. Mixer performance tests consisting of three (3) batches: If more than three (3) tests out of the total are not in compliance with the uniformity requirements, a full ten (10) batch investigation shall be required.

Table 1. Requirements for Uniformity of Concrete

Test	Requirement (Note 1)
Air Content, percent by volume of concrete	1.0 (Note 2)
Slump, inch	1.0 (Note 3)
Coarse aggregate content, portion by weight of each sample retained on the No. 4 sieve, percent	6.0
Average flexural or compressive strength at 7 days for each sample based on average strength of all comparative test specimens, percent	7.5 (Note 4)

Note 1. Expressed as maximum permissible difference in results of tests of samples taken from three locations in the concrete batch.
Note 2. The average air content sample shall be the arithmetic average of two (2) tests.
Note 3. The average slump sample shall be the arithmetic average of two (2) tests.
Note 4. The average flexural strength of each sample shall be the arithmetic average of two (2) beam breaks. The average compressive strength of each sample shall be the arithmetic average of two (2) cylinder breaks.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 95-1 dated January 1, 1995

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004	Springfield	Number 96-1

TO: CONSULTING ENGINEERS

SUBJECT: ITEM 610, STRUCTURAL PORTLAND CEMENT CONCRETE: JOB MIX FORMULA APPROVAL & PRODUCTION TESTING.

I. This policy memorandum addresses the Job Mix Formula (JMF) approval process and production testing requirements when Item 610 is specified for an airport construction contract.

II. PROCESS

a. The contractor may submit a mix design with recent substantiating test data or he may submit a mix design generated by the Illinois Division of Highways with recent substantiating test data for approval consideration. The mix design should be submitted to the Resident Engineer.

b. The Resident Engineer should verify that each component of the proposed mix meets the requirements set forth under Item 610 of the *Standard Specifications for Construction of Airports* and/or the contract special provisions.

c. The mix design should also indicate the following information:

1. The name, address, and producer/supplier number for the concrete.
2. The source, producer/supplier number, gradation, quality, and SSD weight for the proposed coarse and fine aggregates.
3. The source, producer/supplier number, type, and weight of the proposed flyash and/or cement.
4. The source, producer/supplier number, dosage rate or dosage of all admixtures.

d. After completion of Items b and c above, the mix with substantiating test data shall be forwarded to the Division of Aeronautics for approval. Once the mix has been approved the production testing shall be at the rate in Section III as specified herein.

III. PRODUCTION TESTING

a. One set of cylinders or beams, depending on the strength specified, shall be cast for acceptance testing for each day the mix is used. In addition, at least one slump and one air test shall be conducted for each day the mix is used. If more than 100 c.y. of the mix is placed in a given day, additional tests at a frequently of 1 per 100 c.y. shall be taken for strength, slump, and air. In **no** case will concrete with a slump greater than 4 inches be allowed for use on the project.

b. If the total proposed amount of Item 610 Structural Portland Cement Concrete as calculated by the Resident Engineer is less than 50 c.y. for the entire project, the following shall apply:

- The Resident Engineer shall provide a copy of the calculations of the quantity of Item 610 to the Division of Aeronautics.
- One set of cylinders or beams, depending the strength specified, shall be cast for acceptance testing.
- One air content and one slump test shall be taken for acceptance testing.
- In no case will concrete with a slump greater than 4 inches be allowed for use on the project.

c. The Resident Engineer shall collect actual batch weight tickets for every batch of Item 610 concrete used for the project. The actual batch weight tickets shall be kept with the project records and shall be available upon request of the Department of Transportation.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 96-1 dated January 1, 2003

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 15, 2007	Springfield, Illinois	Number 96-2

TO: CONTRACTORS

SUBJECT: REQUIREMENTS FOR LABORATORY, TESTING, QUALITY CONTROL, AND PAVING OF BITUMINOUS CONCRETE MIXTURES

I. SCOPE

The purpose of this policy memorandum is to define to the Contractor the requirements concerning the laboratory, testing, Quality Control, and paving of bituminous concrete mixtures. References are made to the most recent issue of the Standard Specifications for Construction of Airports and to American Society for Testing and Materials (ASTM) testing methods. The Quality Assurance and acceptance responsibilities of the Engineer are described in Policy Memorandum 96-3.

II. LABORATORY

The Contractor shall provide a laboratory located at the plant and approved by the Illinois Division of Aeronautics (IDA). The laboratory shall be of sufficient size and be furnished with the necessary equipment and supplies for adequately and safely performing the Contractor's Quality Control testing as well as the Engineer's acceptance testing as described in Policy Memorandum 96-3.

The effective working area of the laboratory shall be a minimum of 600 square feet with a ceiling height of not less than 7.5 feet. Lighting shall be adequate to illuminate all working areas. It shall be equipped with heating and air conditioning units to maintain a temperature of 70° F ± 5° F.

The laboratory shall have equipment that is in good working order and that meets the requirements set forth in the following ASTM test standards:

ASTM C 117	Test Method for Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregate
ASTM C 566	Total Moisture Content of Aggregate by Drying
ASTM D 75	Sampling Aggregates
ASTM D 1559	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D 2041	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D 2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
IDOT	Ignition Method for Determining Asphalt Content

ASTM D 2726	Bulk Specific Gravity of Compacted Bituminous Mixtures using Saturated Surface Dry Specimens
ASTM D 3203	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D 2950	Density of Bituminous Concrete in Place by Nuclear Method
ASTM D 4125	Asphalt Content of Bituminous Mixtures by Nuclear Method
ASTM C 127	Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate
ASTM C 128	Standard Test Method for Specific Gravity and Absorption of Fine Aggregate

The Asphalt Institute's *Mix Design Methods for Asphalt Concrete Manual No. 2 (MS-2)*

The laboratory and equipment furnished by the Contractor shall be properly calibrated and maintained. The Contractor shall maintain a record of calibration results at the laboratory. The Engineer may inspect measuring and testing devices at any time to confirm both calibration and condition. If the Resident Engineer determines that the equipment is not within the limits of dimensions or calibration described in the appropriate test method, the Engineer may stop production until corrective action is taken. If laboratory equipment becomes inoperable or insufficient to keep up with mix production testing, the Contractor shall cease mix production until adequate and/or sufficient equipment is provided.

III. MIX DESIGN SUBMITTAL

Based upon data and test results submitted by the Contractor, the Illinois Division of Aeronautics Engineer of Construction & Materials shall issue the final Job Mix Formula approval letter that concurs or rejects the Contractor's proposed JMF. The Contractor will be required to perform the sampling and laboratory testing and develop a complete mix design, according to the following guidelines:
[Note: A testing summary chart can be found in Appendix B.]

A. Material sources meeting the requirements of the contract shall be submitted in writing at or before the preconstruction conference (see BITUMINOUS WORKSHEET in Appendix A) in the following format:

1. To: Steve Long, Acting Chief Engineer
   Attn: Mike Wilhelm, Engineer of Construction & Materials
   Division of Aeronautics
   One Langhorne Bond Drive
   Springfield, Illinois 62707

2. Producer name and location of each aggregate

3. Producer # for each aggregate (producers are assigned this number by IDOT Central Bureau of Materials)

4. Material code for each aggregate

5. Gradation and Quality designation for each aggregate (i.e. CA-11, etc.)

6. Producer, producer #, and specific gravities of asphalt cement

7. Performance Graded Binder 64-22 shall be used unless otherwise approved by the IDA Engineer of Materials.

B. The Contractor shall obtain representative samples of each aggregate. The individual obtaining samples shall have successfully completed the IDOT Aggregate Technician Course under the IDOT Division of Highways, QC/QA program. The sample size shall be approximately 280 lb. for each coarse aggregate, 150 lb. for each fine aggregate, 15 lb. for the mineral filler or collected dust, and 1 gallon of asphalt cement.

C. The Contractor shall split the aggregate samples down and run gradation tests according to the testing methods referenced in Appendix B of this memorandum. The remaining aggregates shall be set aside for further Mix Design testing. The results of the gradation tests, along with the most recent stockpile gradations, shall be reported by fax to the IDA Engineer of Materials for engineering evaluation. If the gradation results are deemed non-representative or in any way unacceptable, new representative samples may be required at the direction of the IDA Engineer of Materials. Only composite gradations are required under this procedure.

D. Based on the accepted gradation results, the Contractor will determine blend percentages in accordance with the contract specifications (see Section 201/401 – 3.2 JOB MIX FORMULA under Table 4) for each aggregate to be used in determining the Job Mix Formula, as well as mix temperature and asphalt content(s), and number of Marshall Blows for preparation of the Marshall Mix Design, or number of gyrations for Superpave Mix Design, depending on which design method is specified in the contract. The Contractor will verify the aggregate percentages, mix temperatures, asphalt content(s), and number of Marshall blows (or gyrations) with the IDA Engineer of Construction & Materials before beginning any testing.

E. After verification of the information from step D., the Contractor shall make specimens and perform the following tests at various asphalt contents in order to obtain the optimum mix design. [Note: Actual test designation is referenced in Appendix B of this memorandum.]

Marshall Tests
Maximum Specific Gravity -- "G_{mm}"
Bulk Specific Gravity -- "G_{sb}"
Marshall Stability
Marshall Flow
% air voids

The JMF will be designed in accordance with Table 4 as modified in the Recurring Special Provisions for the type of mix being produced. Appendix C contains a copy of the Table 4 targets and ranges for the JMF.

F. All technicians who will be performing mix design testing and plant sampling/testing shall have successfully completed the IDOT Division of Highways Bituminous Concrete Level 1 Technician Course "Bituminous Concrete Testing". The Contractor may also provide a Gradation Technician who has successfully completed the Department's "Gradation Technician Course" to run gradation tests only under the supervision of a Bituminous Concrete Level 2 Technician.

G. The mix design testing results and resulting optimal JMF shall be reported to the IDA Engineer of Construction & Materials with the following data included:

a) Aggregate & liquid asphalt material codes
b) Aggregate & liquid asphalt producer numbers, names, and locations
c) Aggregate Blend of each aggregate
d) Optimum Blend % for each sieve
e) AC Specific Gravity
f) Bulk Specific Gravity and Absorption for each aggregate
g) Summary of Marshall Design Data: AC % Mix, Stability, Flow, G_{mb}, G_{mm}, VMA, Voids (Total Mix), Voids Filled

h) Optimum design data listing AC % Mix, Stability, Flow, G_{mb}, G_{mm}, VMA, Voids (Total Mix), Voids Filled
i) Percent of asphalt that any RAP will add to the mix
j) Graphs for the following: gradation on 0.45 Power Curve, AC vs. Voids (Total Mix), AC vs. Specific Gravities, AC vs. Voids Filled, AC vs. Stability, AC vs. Flow and VMA

H. The IDA Engineer of Construction & Materials shall generate and issue a concurrence or rejection of the Contractor's proposed Mix Design with the JMF for the manufacture of bituminous mixtures based upon the Contractor's submitted testing and complete mix design results. The Contractor shall not be permitted to use the proposed HMA mix in production for the project until this concurrence letter is issued to the Contractor by the IDA Engineer of Construction & Materials, and the mix passes all test section requirements, when a test section is specified.

I. The above procedure, III. MIX DESIGN SUBMITTAL shall be repeated for each change in source or gradation of materials.

IV. MIX PRODUCTION TESTING

The Quality Control of the manufacture and placement of bituminous mixtures is the responsibility of the Contractor. The Contractor shall perform or have performed the inspection and tests required to assure conformance to contract requirements. Quality Control includes the recognition of defects and their immediate correction. This may require increased testing, communication of test results to the plant or the job site, modification of operations, suspension of bituminous mix production, rejection of material, or other actions as appropriate. The Resident Engineer shall be immediately notified of any failing tests and subsequent remedial action. Form AER M-14 shall be reported to the Engineer and Resident Engineer no later than the start of the next work day. In addition, AER M-9 and M-11 shall be given to the Resident Engineer daily (Appendix A). The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for Quality Control. This individual shall have successfully completed the IDOT Division of Highways Bituminous Concrete Level II Technician Course "Bituminous Concrete Proportioning and Mixture Evaluation." In addition to the QC Manager, the Contractor shall provide sufficient and qualified personnel to perform the required visual inspections, sampling, testing, and documentation in a timely manner. The following plant tests and documentation shall be required: [Note: A summary chart of testing can be found in Appendix B.]

A. Minimum of one (1) complete hot bin or combined belt analysis per day of production or every 1,000 tons, whichever is more frequent.

B. Minimum one (1) stockpile gradation for each aggregate and/or mineral filler per week when a batch plant is utilized. Minimum of one (1) gradation for each aggregate per day of production or every 1,000 tons when a drum plant is used, and one (1) gradation per week for mineral filler when a drum plant is used.

C. A certification from the quarry for the total quantity of aggregate listing the source, gradation type, and quality designation of aggregate shipped.

D. Original asphalt shipping tickets listing the source and type of asphalt shipped.

E. One mix sample per 1,000 tons of mix. The sample shall be split in half. One half shall be reserved for testing by the Engineer. The other half shall be split and tested by the Contractor for Marshall, Extraction, Gradation, Maximum Specific Gravity, and Air Void tests in accordance with the appropriate ASTM standard referenced herein. [See Appendix B.]

1. In place of the extraction test, the Contractor may provide the asphalt content by a calibrated ignition oven test using the IDOT Division of Highways' latest procedure. The correction (calibration) factor for aggregate type shall be clearly indicated in the reported test results.

From these tests, the Contractor shall interpret the test data and make necessary adjustments to the production process in order to comply with the approved JMF.

V. QUALITY CONTROL

A. Control Limits

Target values shall be determined from the approved JMF. The target values shall be plotted on the control charts within the following control limits:

	Control Limits	
Parameter	Individual Test	Moving Avg. of 4
% Passing		
1/2 in.	± 7 %	± 4 %
No. 4	± 7 %	± 4 %
No. 8	± 5 %	± 3 %
No. 30	± 4 %	± 2.5 %
No. 200 *	± 2.0 % *	± 1.0 % *
Asphalt Content	± 0.45 %	± 0.2 %

* No. 200 material percents shall be based on washed samples. Dry sieve gradations (-200) shall be adjusted based on anticipated degradation in the mixing process.

B. Control Charts

Standardized control charts shall be maintained by the Contractor at the field laboratory. The control charts shall be displayed and be accessible at the field laboratory at all times for review by the Engineer. The individual required test results obtained by the Contractor shall be recorded on the control chart immediately upon completion of a test, but no later than 24 hours after sampling. Only the required plant tests and resamples shall be recorded on the control chart. Any additional testing of check samples may be used for controlling the Contractor's processes, but shall be documented in the plant diary.

The results of assurance tests performed by the Engineer will be posted as soon as available.

The following parameters shall be recorded on control charts:

1. Combined Gradation of Hot-Bin or Combined Belt Aggregate Samples (Drier Drum). (% Passing 1/2 in., No. 4., No. 8, No. 30, and No. 200 Sieves)

2. Asphalt Content

3. Bulk Specific Gravity of Marshall Sample

4. Maximum Specific Gravity of Mixture

C. Corrective Action for Required Plant Tests

Control Limits for each required parameter, both individual tests and the average of four tests, shall be exhibited on control charts. Test results shall be posted within the time limits previously outlined.

1. Individual Test Result. When an individual test result exceeds its control limit, the Contractor shall immediately resample and retest. If at the end of the day no material remains from which to resample, the first sample taken the following day shall serve as the resample as well as the first sample of the day. This result shall be recorded as a retest. If the retest passes, the Contractor may continue the required plant test frequency. Additional check samples should be taken to verify mix compliance.

2. Asphalt Content. If the retest for asphalt content exceeds control limits, mix production shall cease and immediate corrective action shall be instituted by the Contractor. After corrective action, mix production shall be restarted, the mix production shall be stabilized, and the Contractor shall immediately resample and retest. Mix production may continue when approved by the Engineer. The corrective action shall be documented.

   Inability to control mix production is cause for the Engineer to stop the operation until the Contractor completes the investigation identifying the problems causing failing test results.

3. Combined Aggregate/Hot-Bin. For combined aggregate/hot-bin retest failures, immediate corrective action shall be instituted by the Contractor. After corrective action, the Contractor shall immediately resample and retest. The corrective action shall be documented.

   a. Moving Average. When the moving average values trend toward the moving average control limits, the Contractor shall take corrective action and increase the sampling and testing frequency. The corrective action shall be documented.

      The Contractor shall notify the Engineer whenever the moving average values exceed the moving average control limits. If two consecutive moving average values fall outside the moving average control limits, the Contractor shall cease operations. Corrective action shall be immediately instituted by the Contractor. Operations shall not be reinstated without the approval of the Engineer. Failure to cease operations shall subject all subsequently produced material to be considered unacceptable.

   b. Mix Production Control. If the Contractor is not controlling the production process and is making no effort to take corrective action, the operation shall stop.

VI. TEST SECTION AND DENSITY ACCEPTANCE **(Note: Applies only when specified.)**

A. The purpose of the test section is to determine if the mix is acceptable and can be compacted to a consistent passing density.

   A quick way to determine the compactibility of the mix is by the use of a nuclear density gauge in the construction of a growth curve. An easy way to construct a growth curve is to use a good vibratory roller. To construct the curve, an area the width of the roller in the middle of the mat is chosen and the roller is allowed to make one compactive pass. With the roller stopped some 30 feet away, a nuclear reading is taken and the outline of the gauge is marked on the pavement. The roller then makes a compaction pass in the opposite direction and another reading is taken. This scenario is continued until at least two (2) passes are made past the maximum density obtained.

The maximum laboratory density potential of a given mix is a direct function of the mix design air voids. Whereas, the actual maximum field density is a function of the type of coarse aggregates, natural or manufactured sands, lift thickness, roller type (static or vibratory), roller and paver speed, base condition, mix variation, etc. All of these items are taken into consideration with the growth curve.

1. High Density in the Growth Curve. If the growth curve indicates a maximum achievable field density of between 95 to 98 percent of the Theoretical Maximum Density (D), you can proceed with the Rolling Pattern. On the other hand, if the maximum achievable density is greater than 98 percent, a quick evaluation (by use of an extractor, hot bin gradations, nuclear asphalt determinator, etc.) must be made of the mix. When adjustments are made in the mix, a new growth curve shall be constructed.

2. Low Density in the Growth Curve. If the growth curve indicates the maximum achievable density is below 94 percent, a thorough evaluation of the mix, rollers, and laydown operations should be made. After a thorough evaluation of all factors (mix, rollers, etc.), asphalt or gradation changes may be in order as directed by the Engineer. Again, any changes in the mix will require a new growth curve. Note that the nuclear density test is a quality control tool and not an acceptance test. All acceptance testing is to be conducted by the use of cores, unless otherwise specified.

3. Acceptance of Test Section. The Contractor may proceed with paving the day after the test section provided the following criteria have been met:

    a. Four random locations (2 cores per location cut longitudinally and cored by the Contractor) will be selected by the Engineer within the test strip. No individual core can be below a minimum of 94% density.

    b. All Marshall and extraction test results from mix produced for the test section must be within the tolerances required by specification.

    c. The Contractor shall correlate his nuclear gauge to the cores taken in the test section. Additional cores may be taken at the Contractor's expense for this purpose within the test section area, when approved by the Engineer.

4. Density Acceptance under Production Paving. The responsibility for obtaining the specified density lies with the Contractor. Therefore, it is important that the nuclear density gauge operator communicate with the roller operators to maintain the specified density requirements. The Contractor shall provide a Bituminous Concrete Density Tester who has successfully completed the Department's "Bituminous Concrete Nuclear Density Testing Course" to run all required density tests on the job site. Density acceptance testing, unless otherwise specified, is described as follows:

    a. The Contractor shall cut cores at random locations within 500 ton sublots as directed by the Resident Engineer.

    b. The cores should be extracted so as not to damage them, since they are used to calculate the Contractor's pay.

    c. The Engineer will run preliminary G_{mb} tests on the cores to give the Contractor an indication of how compaction is running for the next day's paving.

d. A running average of four (4) Maximum Theoretical Gravities (G_{mm}) will be used for calculating percent compaction.

e. Final core density tests and pay calculations will be performed by the Resident Engineer and delivered to the Contractor.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 96-2 dated April 1, 2004

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004	Springfield, Illinois	Number 96-3

TO: CONSULTING ENGINEERS

SUBJECT: REQUIREMENTS FOR QUALITY ASSURANCE ON PROJECTS WITH BITUMINOUS CONCRETE PAVING

I. SCOPE

The purpose of this policy memorandum is to define to the Consulting Engineer the requirements concerning Quality Assurance on bituminous concrete paving projects. Specifically, this memo applies whenever the Contractor is required to comply with the requirements set forth in Policy Memorandum 96-2, "*Requirements for Laboratory, Testing, Quality Control, and Paving of Bituminous Concrete Mixtures*".

II. LABORATORY APPROVAL

The Resident Engineer shall review and approve the Contractor's plant laboratory to assure that it meets the requirements set forth in the contract specifications and Policy Memorandum 96-2. This review and approval shall be completed prior to utilization of the plant for the production of any mix.

III. QUALITY ASSURANCE DURING PRODUCTION PAVING

A. At the option of the Engineer, independent assurance tests may be performed on split samples taken by the Contractor for Quality Control testing. In addition, the Resident Engineer shall witness the sampling and splitting of these samples at the start of production and as needed throughout mix production. The Engineer may select any or all split samples for assurance testing. These tests may be performed at any time after sampling. The test results will be made available to the Contractor as soon as they become available.

B. The Resident Engineer may witness the sampling and testing being performed by the Contractor. If the Resident Engineer determines that the sampling and Quality Control tests are not being performed according to the applicable test procedures, the Engineer may stop production until corrective action is taken. The Resident Engineer will promptly notify the Contractor, both verbally and in writing, of observed deficiencies. The Resident Engineer will document all witnessed samples and tests. The Resident Engineer may elect to obtain samples for testing, separate from the Contractor's Quality Control process, to verify specification compliance.

1. Differences between the Contractor's and the Engineer's split sample test results will be considered acceptable if within the following limits:

Test Parameter	Acceptable Limits of Precision
% Passing	
1/2 in.	5.0 %
No. 4	5.0 %
No. 8	3.0 %
No. 30	2.0 %
No. 200	2.2 %
Asphalt Content	0.3 %
Maximum Specific Gravity of Mixture	0.026
Bulk Specific Gravity of Marshall Sample	0.045

2. In the event a comparison of the required plant test results is outside the above acceptable limits of precision, split or independent samples fail the control limits, an extraction indicates non-specification mix, or a continual trend of difference between Contractor and Engineer test results is identified, the Engineer will immediately investigate. The Engineer may suspend production while the investigation is in progress. The investigation may include testing by the Engineer of any remaining split samples or a comparison of split sample test results on the mix currently being produced. The investigation may also include review and observation of the Contractor's technician performance, testing procedure, and equipment. If a problem is identified with the mix, the Contractor shall take immediate corrective action. After corrective action, both the Contractor and the Engineer shall immediately resample and retest.

C. The Contractor shall be responsible for documenting all observations, records of inspection, adjustments to the mixture, test results, retest results, and corrective actions in a bound hardback field book or bound diary which will become the property of IDA upon completion and acceptance of the project. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the Contractor's Consultants, or the producer of bituminous mix material. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

Results of adjustments to mixture production and tests shall be recorded in duplicate and sent to the Engineer.

IV. ACCEPTANCE BY ENGINEER

Density acceptance shall be performed according to Policy Memorandum 87-2, or according to the acceptance procedure outlined in the Special Provisions.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 96-3 dated January 1, 1997

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004	Springfield, Illinois	Number 97-2

TO: CONSULTING ENGINEERS

SUBJECT: PAVEMENT MARKING PAINT ACCEPTANCE

I. SCOPE

The purpose of this policy memorandum is to define the procedure for acceptance of pavement marking paint.

II. RESIDENT ENGINEER'S DUTIES

The Resident Engineer shall follow the acceptance procedure outlined as follows:

A. Require the painting contractor to furnish the name of the paint manufacturer and the batch number proposed for use prior to beginning work. Notify the I.D.A. Materials Certification Engineer when this information is available.

B. Require the manufacturer's certification before painting begins. Check the certification for compliance to the contract specifications.

1. The certification shall be issued from the manufacturer and shall include the specification and the batch number.

2. The paint containers shall have the manufacturer's name, the specification and the batch number matching the certification.

C. If no batch number is indicated on the certification or containers, sample the paint according to the procedure for the corresponding paint type.

D. If the I.D.A. Engineer of Materials indicates that batch number has not been previously sampled and tested, sample the paint according to the procedure for the corresponding paint type. The Division of Aeronautics will provide paint cans upon request by the Resident Engineer. Samples will only be taken in new epoxy lined cans so that the paint will not be contaminated. It is important to seal the sample container immediately with a tight cover to prevent the loss of volatile solvents.

Mark the sample cans with the paint color, manufacturer's name, and batch number. The paint samples and manufacturer's certification shall be placed in the mail within 24 hours after sampling. Address the samples to the Materials Certification Engineer at:

Illinois Department of Transportation
Division of Aeronautics
One Langhorne Bond Drive
Springfield, Illinois 62707

Sampling Procedures for Each Paint Type:

1. Waterborne or Solvent Base Paints
   a. Take the paint sample from the spray nozzle when the contractor begins marking. A sample consists of two one-pint cans taken per batch number.
   b. Be sure to indicate to the contractor that acceptance of material is based upon a passing test of the paint material.

2. Epoxy Paint
   a. Take separate one-pint samples of each paint component prior to marking. Before drawing samples, the contents of each component's container must be thoroughly mixed to make certain that any settled portion is fully dispersed. **Do not combine the two components or sample from the spray nozzle.**
   b. Be sure to indicate to the contractor that acceptance of material is based upon a passing test of the paint material.

III. TESTING

The paint will be tested for acceptance by the IDOT Bureau of Materials and Physical Research for conformance to the contract specifications.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes policy memorandum 97-2 dated February 27, 2002

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

January 1, 2004	Springfield, Illinois	Number: 2001-1

TO: CONTRACTORS

SUBJECT: REQUIREMENTS FOR COLD WEATHER CONCRETING

I. PURPOSE

A. This policy memorandum outlines the minimum requirements for cold weather concreting. Cold weather is defined as whenever the average ambient air temperature during day or night drops below 40°F.

II. COLD WEATHER CONCRETING PLAN

A. The contractor shall submit a cold weather concreting plan to the Engineer for approval. Cold weather concreting operations are not allowed to proceed until the contractor's cold weather concreting plan has been approved by the Engineer.

B. The contractor's plan shall be in compliance with this memorandum and shall address, as a minimum, the following:

1. Concrete Mix Manufacturing
2. Concrete Mix Temperature Monitoring
3. Base Preparation
4. Concrete Curing and Protection
5. In Place Concrete Temperature Monitoring
6. Strength Test Specimens

III. MINIMUM REQUIREMENTS

A. Concrete Mix Manufacturing

1. The contractor must make the necessary adjustments so that the concrete temperature is maintained from 50°F to 90°F for placement. Acceptable methods include:

a) Heating the mixing water Note: If the mixing water is to be heated to a temperature above 100°F, the contractor must include a mixing sequence plan to indicate the order that each component of the mix is to be charged into the mixer.

b) Heating the aggregates Note: The exact method of heating the aggregates shall be included as part of the cold weather concreting plan. Aggregates must be free of ice and frozen lumps. To avoid the possibility of a quick or flash set of the concrete, when either the water or aggregates are heated to above 100°F, they should be combined in the mixer first before the cement is added.

B. Concrete Mix Temperature

1. The contractor shall monitor the mix temperature at the plant and prior to placement in the forms. Mix that does not meet the temperature requirement of 50°F to 90°F shall be rejected for use on the project.

C. Base Preparation

1. Paving or placing concrete on a frozen base, subbase, or subgrade is prohibited.

2. The base, subbase, or subgrade on which the concrete is to be placed shall be thawed and heated to at least 40°F. The method by which the base subbase or subgrade is to be heated shall be indicated in the contractors cold weather concreting plan. Insulating blankets or heated enclosures may be required.

D. Concrete Protection and Curing

1. In addition to the curing options available in article 501-3.17 (a) (b), (c), and (d) of the Standard Specifications for Construction of Airports, the contractor shall protect the concrete in such a manner as to maintain a concrete temperature of at least 50°F for 10 days.

2. The method of concrete protection shall be by use of insulating layer or heated enclosure around the concrete. The method of protection shall be indicated in the contractor's cold weather concreting plan. When insulating layers are to be used, the thermal resistance to heat transfer (R Value in $°F*hr*ft^2/BTU$) of the insulation material selected, shall be appropriate for the slab thickness being constructed and shall be indicated in the cold weather concreting plan.

3. Appendix A shows a chart and table taken from the American Concrete Institute specification, ACI 306 R Cold Weather Concreting, which may be used by the contractor in selecting the proper insulation (R Value) and insulating material which may be used.

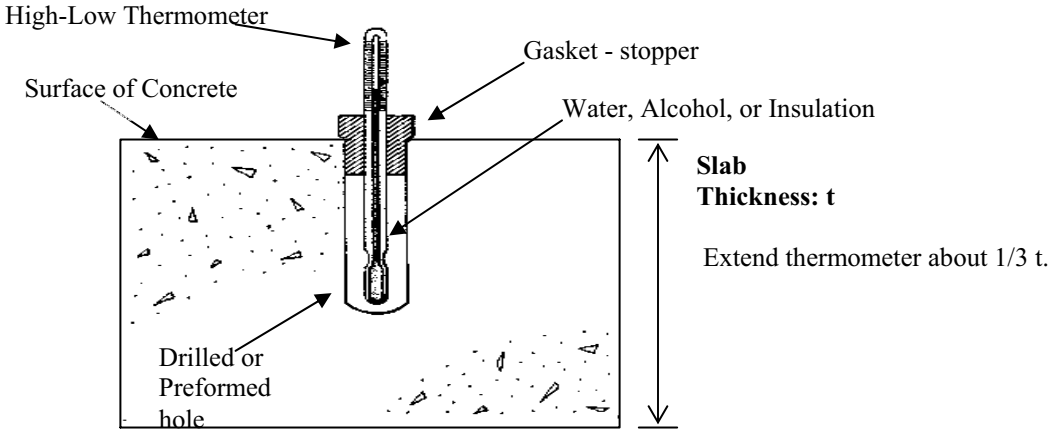
E. In-Place Concrete Temperature Monitoring

1. Once the concrete is in place, the protection method used, must ensure that the concrete temperature does not fall below 50°F for the time period specified in Section (D. 1.) of this Policy Memorandum (10 days).

2. The concrete temperature on the surface and below the surface must be monitored and recorded by the contractor for the duration of the protection period in Section (D. 1.).

3. After the concrete has hardened, surface temperature can be checked with special surface thermometers or with an ordinary thermometer that is kept covered with insulating blankets. The high and low values for each 24-hour period of protection must be measured and recorded.

4. One acceptable method of checking temperature below the concrete surface is given in the Portland Cement Association (PCA) book entitled "Design and Control of Concrete Mixtures" latest edition. The method is indicated below and it should be noted that the thermometer should be capable of recording high and low values for a given 24-hour period.



Scheme for measuring concrete temperature below the surface.

5. The exact method for <u>surface</u> and <u>sub-surface</u> concrete temperature monitoring shall be indicated in the contractor's cold weather concreting plan. The maximum permissible difference between the interior and surface temperature is 35 °F. Adjustments in protection method shall be implemented if the maximum permissible difference is exceeded.

F. Strength specimen handling

1. The Contractor is responsible for making, transporting, and curing all samples (beams or cylinders)
2. The Contractor is required to load the testing machine and dispose of the broken pieces.
3. Onsite, indoor curing facilities, meeting the requirements of ASTM C-31, shall be required for cold weather concreting operations.

4. Sampling for strength specimens shall be according to the Contract Special Provisions. Sampled concrete shall be transported to the indoor curing facilities for the casting of strength specimens.

5. The exact location and description of the curing facilities shall be indicated in the contractor's cold weather concreting plan.

6. The method of transporting concrete sampled from the grade to the curing facilities for casting shall be indicated in the contractor's cold weather concreting plan.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 2001-1 dated January 1, 2001

State of Illinois
Department of Transportation
Bureau of Materials and Physical Research

POLICY MEMORANDUM

January 1, 2007	Springfield	07-21

TO: REGIONAL ENGINEERS, HIGHWAY BUREAU CHIEFS, AND MANUFACTURERS AND SUPPLIERS OF FINELY DIVIDED MINERALS

SUBJECT: ACCEPTANCE PROCEDURE FOR FINELY DIVIDED MINERALS USED IN PORTLAND CEMENT CONCRETE AND OTHER APPLICATIONS

DEFINITIONS

Department - Illinois Department of Transportation.

Bureau - Bureau of Materials and Physical Research, at 126 East Ash Street, Springfield, Illinois 62704-4766.

Finely Divided Mineral - A finely divided material which has cementitious or pozzolanic properties. Examples are fly ash, microsilica (silica fume), ground granulated blast-furnace (GGBF) slag, and high-reactivity metakaolin (HRM).

Manufacturer - A company that manufactures a finely divided mineral. The term Producer is also used.

Supplier - A company that supplies a finely divided mineral which it does not manufacture.

Source - The name and location of the manufacturing process from which the finely divided mineral is obtained.

Approved Source - A source that is approved by the Bureau to ship a finely divided mineral for immediate use on Department projects.

Unapproved Source - A source that ships a finely divided mineral which must be sampled, tested, and approved by the Bureau before it is used on Department projects.

Cement - Portland cement.

Fly Ash - A finely divided residue that results from the combustion of ground or powdered coal, transported from the combustion chamber by exhaust gas, collected by mechanical or electrical means, and stored in stockpiles or bins.

Microsilica - An amorphous silica of high silica content and purity possessing high pozzolanic activity.

Ground Granulated Blast-Furnace (GGBF) Slag - A glassy granular material, formed when molten blast-furnace slag is rapidly chilled, and then finely ground.

High-Reactivity Metakaolin (HRM) - A reactive aluminosilicate pozzolan formed by calcining purified kaolinite at a specific temperature range.

Reference Material - A portland cement used for the control mortar and corresponding test mortars, of a finely divided mineral, to determine its strength activity index.

Preliminary (PRE) Sample - A sample used to determine, in advance, if the finely divided mineral will comply with Department specifications.

Process Control (PRO) Sample - A sample used for the purpose of controlling production of finely divided minerals proposed for incorporation into Department projects.

Acceptance (ACC) Sample - A sample used for accepting/rejecting finely divided minerals prior to its use on Department projects and/or unassigned stock for future use on projects. The quantity represented by acceptance samples must be given.

Independent Assurance (IND) Sample - A sample used to provide an independent check on the reliability of the manufacturer's quality control program.

Investigation (INV) Sample - A destination sample used to verify the acceptability of a finely divided mineral from a source.

Grab Sample - A sample secured from a conveyor, from bulk storage, or from a bulk shipment in one operation.

Composite Sample - Combined grab samples taken at prescribed intervals over a period of time.

NIST - National Institute of Standards and Technology.

CCRL - Cement and Concrete Reference Laboratory.

ISO 9000 Series - A program of international quality management system standards developed by the International Organization for Standardization (ISO).

1.0 PURPOSE

To establish procedures whereby materials of mineral origin, furnished by a **Manufacturer** or **Supplier**, will be accepted for use on **Department** projects.

2.0 SCOPE

This procedure is available to all **Manufacturers** or **Suppliers** of domestic and foreign **Finely Divided Minerals**. **Sources** in North America may be **Approved** or **Unapproved.** **Sources** located outside of North American will not be given **Approved Source** status, and the procedures in Sections 5.1 and 5.3 shall apply.

3.0 SPECIFICATION REQUIREMENTS, SAMPLING, AND TEST PROCEDURES

3.1 **Finely Divided Minerals** used on **Department** projects shall meet the material requirements of the **Department's** "Standard Specifications for Road and Bridge Construction (January 1, 2007)" and current special provisions.

4.0 APPROVED SOURCE PROCEDURE

4.1 A **Manufacturer** or **Supplier** requesting **Source** approval of a **Finely Divided Mineral** shall provide the following to the **Bureau**:

(1) The **Manufacturer**'s or **Supplier**'s name and location.

(2) The **Source** name, location (station), and number of generating units.

(3) The name of the **Finely Divided Mineral** and its class or grade.

(4) A certification that the **Finely Divided Mineral** meets the applicable requirements of Section 3.0.

(5) A 6-month testing history.

(6) A copy of the **Manufacturer**'s or **Supplier**'s quality control program.

(7) A copy of the last **CCRL** inspection report of the testing laboratory used by the **Manufacturer** or **Supplier** of **the Finely Divided Mineral,** with documentation of resolution of any discrepancies noted therein. The **Manufacturer** or **Supplier** of **HRM** or **Microsilica** shall provide a copy of the testing laboratory's **CCRL** inspection report and/or an **ISO 9000 Series** certificate.

(8) A copy of the Material Safety Data Sheet (MSDS) for the **Finely Divided Mineral**.

At the time of application, the **Manufacturer** or **Supplier** shall obtain a **Preliminary (PRE) Grab Sample** of the **Finely Divided Mineral** from current production. The **Manufacturer** or **Supplier** shall split the **PRE Sample** and place one portion in an airtight container and deliver it to the **Bureau**. A sample of the **Reference Material** used by the **Manufacturer** or **Supplier** for testing shall be included. The **Manufacturer** or **Supplier** shall assume the cost to deliver the samples to the **Bureau**. The size of the **Bureau's** portion of the **PRE Sample**, and the **Reference Material**, shall not be less than 3 kg (6 lb.) each and the samples shall be properly identified as required in Attachment 1. The **Manufacturer** or **Supplier** shall test the retained portion of the **PRE Sample** for the standard physical and chemical properties listed in the applicable specification in Section 3.0 and deliver a copy of the test results to the **Bureau** for comparison.

The **Bureau** will test its portion of the **PRE Grab Sample** for conformance to Section 3.0. The **Bureau** will compare the results obtained by both laboratories to determine compliance with the allowable difference between two laboratories set forth in the precision statement of each test method. Additional split sample testing will be required if the test results obtained on the **PRE Grab Sample** do not comply with the specification requirements of this policy memorandum.

An inspector from the **Bureau** may conduct a scheduled visit to inspect the laboratory facilities designated by the **Manufacturer** or **Supplier** to test the **Finely Divided Mineral**; the **Source** manufacturing process, the **Source** storage facilities; and the quality control policies, procedures, and practices used by the **Manufacturer** or **Supplier**. The **Manufacturer** of **Supplier** shall be responsible for payment of transportation, per diem (meals), lodging, and incidental travel costs incurred by the **Department**.

The **Bureau** will notify the **Manufacturer** or **Supplier**, in writing, if the request for **Approved Source** status is granted or denied. A request may be denied if the **Manufacturer** or **Supplier** fails to meet the requirements of this policy memorandum, or for other reasons determined by the **Department**.

4.2 Quality Control Requirements for **Approved Sources**:

The **Manufacturer** or **Supplier** shall establish and maintain quality control policies and procedures for sampling and testing that are approved by the **Bureau**. The **Bureau** shall be notified of any changes in the **Manufacturer's** or **Supplier**'s quality control program.

Testing laboratories used by the **Manufacturers** or **Suppliers** of **Fly Ash** or **GGBF Slag** shall participate in the **CCRL** pozzolan program of the **NIST**, which includes inspection of facilities and testing of comparative samples. As an alternative to the **CCRL** pozzolan program of the **NIST**, **Manufacturers** or **Suppliers** of **GGBF Slag** may participate in the **CCRL** cement program. Testing laboratories used by the **Manufacturers** or **Suppliers** of **Microsilica** or **HRM** shall participate in the **CCRL** pozzolan program of the **NIST** and/or shall have implemented a quality management system based on the **ISO 9000 Series** standards.

4.3 Reporting Requirements for **Approved Sources**:

The **Manufacturer** or **Supplier** shall deliver a test report to the **Bureau** which lists the results of all **Grab** and/or **Composite Samples** taken and tested for the specified reporting period.

For **Fly Ash**, the report shall be monthly, and shall be delivered no later than forty calendar days after the end of the month. If the **Fly Ash Source** is sampling more frequently than once per month according to ASTM C 311, then the report shall be delivered no later than forty calendar days after the end of the composite date. If the deadline falls on a Saturday, Sunday, or State Holiday, the deadline shall be the next work day.

For **GGBF Slag**, **HRM**, and **Microsilica**, the report shall be quarterly and shall be delivered no later than forty calendar days after the end of each quarter. For the purpose of the reports, the quarters shall end March 30, June 30, September 30, and December 31. If the deadline falls on a Saturday, Sunday, or State Holiday, the deadline shall be the next work day.

Sampling, testing, and reporting shall be done according to the applicable specification in Section 3.0.

4.4 Record Requirements for **Approved Sources:**

Records of production control tests shall be maintained by the **Manufacturer** or **Supplier** for a minimum period of 5 years, and shall be made available to the **Bureau** upon request.

Copies of bills of lading of quantities of **Finely Divided Minerals** shipped shall be maintained by the **Manufacturer** or **Supplier** for a minimum period of 3 years, and shall be made available to the **Bureau** upon request.

4.5 Sampling and Test Requirements for **Approved Sources**:

For **Fly Ash**, each February, May, August, and November, the **Supplier** shall obtain a **Process Control (PRO) Grab Sample**.

For **GGBF Slag, HRM, and Microsilica**, each January, April, July, and October, the **Manufacturer** or **Supplier** shall obtain a **PRO Grab Sample**.

The **PRO Grab Sample** shall be split for testing by the **Manufacturer** or **Supplier** and the **Bureau**. At this time, a sample of the current **Reference Material** used by the **Manufacturer** or **Supplier** for testing shall also be split.

The **Bureau** may require that more frequent **PRO Grab Samples** be obtained and tested. Increasing the sampling frequency may be required due to significant changes in the material or process, variations in test results between the **Bureau** and **Manufacturer** or **Supplier**, field test results, or other reasons as determined by the **Bureau**. The **Bureau** samples shall be placed in airtight containers, properly identified on form BMPR CM01 (www.dot.il.gov/materials/materialforms.html), and delivered to the **Bureau** no later than the last work day of the month. Each **Finely Divided Mineral** sample and **Reference Material** sample shall not be less than 3 kg (6 lb).

The **Manufacturer** or **Supplier** shall test the retained portion of each **PRO Sample**, using the retained portion of the **Reference Material**, for the standard physical and chemical properties listed in the applicable specification in Section 3.0. When all tests are completed, the **Manufacturer** or **Supplier** shall record the test results on a report form that identifies the sample as a **PRO Sample**, and deliver the report to the **Bureau** no later than the last work day of the following month from the date of sample.

The test results obtained by the **Manufacturer** or **Supplier** and the **Bureau** on all split samples will be compared for compliance with the allowable differences for two laboratories set forth in the precision statement of each test method and for compliance with Section 3.0. If significant differences exist in the split sample test results, the **Department** will investigate sampling and test procedures, or require additional comparative sampling to determine the cause of the variation.

4.6 **Department** Inspections of **Approved Sources**:

An inspector from the **Bureau** may conduct unscheduled visits, at **Department** expense, to each **Approved Source** or one of its terminals. During this visit, the inspector will either take or witness the taking of a random **Independent Assurance (IND) Grab Sample**. The inspector will split the sample and deliver an equal portion to the **Manufacturer** or **Supplier**. The **Manufacturer** or **Supplier** shall test the retained portion of the split sample for the standard physical and chemical properties

listed in the applicable specification and deliver the test results to the **Bureau**, as specified in Section 4.5, for comparison and compliance with Section 3.0.

Random **Investigation (INV) Samples** of the **Finely Divided Minerals** and the project **Cement** will be obtained at final destination by a representative of the **Department**. The representative will either take or witness the taking of the **INV**

Samples. **INV Samples** will be **Grab Samples** and shall not be less than 3 kg (6 lb). (Note: **Cement** samples will be taken according to ASTM C 183). The

sampling location and frequency for obtaining **INV Samples** will be determined by the **Bureau** in consultation with the district offices.

The **Bureau** will test **INV Samples** to ascertain the results of **Finely Divided Mineral**-project **Cement** combinations. To verify that **Finely Divided Minerals** shipped from **Approved Sources** meet the requirements of Section 3.0, the **Bureau** will test **INV Samples** with the appropriate **Reference Material**.

4.7 Revocation of **Approved Source** Status:

Failure of a **Manufacturer** or **Supplier** to meet the requirements of Sections 3.0 and 4.0 of this policy memorandum will be sufficient cause to revoke **Approved Source** status. However, a total of three late submittals in a twelve month period for any of the following: test report (**Grab** or **Composite Samples**), **PRO Sample**, or **PRO** test results will be permitted. Revocation will occur if a fourth late submittal occurs in a twelve month period. The **Manufacturer** will be notified in writing when the third late submittal in a twelve month period occurs.

Failure to resolve significant differences in testing, as indicated by the test results obtained on **PRO** or **IND Samples** split with the **Manufacturer** or **Supplier** will be sufficient cause to revoke **Approved Source** status.

Failure of the testing laboratory, used by the **Manufacturer** or **Supplier** of a **Finely Divided Mineral**, to satisfactorily resolve the discrepancies noted in the **CCRL** inspection report and/or to maintain a quality management system based on the **ISO 9000 Series** will be sufficient cause to revoke **Approved Source** status.

Revocation of **Approved Source** status will be reported to the **Manufacturer** or **Supplier** in writing. The **Manufacturer** or **Supplier** may not re-apply for **Approved Source** status until 30 days have elapsed from the date of the written notice of revocation.

5.0 UNAPPROVED SOURCE PROCEDURE

5.1 A **Manufacturer** or **Supplier** requesting approval of a **Finely Divided Mineral** from an **Unapproved Source** shall provide the following to the **Bureau**:

(1) The **Manufacturer's** or **Supplier's** name and location.

(2) The **Source** name, location (station), and number of generating units.

(3) The name of the **Finely Divided Mineral** and its class or grade.

(4) A current test report, in English, which indicates the standard physical and chemical composition of the **Finely Divided Mineral** as per Section 3.0.

(5) The transportation method and location at which an inspector from the **Bureau** will be able to obtain **Acceptance (ACC) Samples**.

(6) If requested by the **Bureau**, the **Manufacturer** or **Supplier** shall deliver to the **Bureau** a 24-hr **Composite Preliminary (PRE) Sample** of the **Finely Divided Mineral** from current shipments. The **Manufacturer** or **Supplier** shall assume the cost to deliver it to the **Bureau.** The size of the **PRE Sample** shall not be less than 3 kg (6 lb) and the sample shall be properly identified as required in Attachment 1.

5.2 Sampling and Test Requirements for **Unapproved Sources** in North America:

(1) **Finely Divided Minerals** from an **Unapproved Source** will be sampled, tested, and approved by the **Bureau** before use on **Department** projects. The **Bureau** has the option to affix a seal to secure **Finely Divided Minerals** in storage (e.g. silo, truck, railroad car, or barge) until the **Bureau's** testing is completed.

(2) Upon arrival of the **Finely Divided Mineral** to Illinois, an inspector from the **Bureau** will obtain **Acceptance (ACC) Grab Samples** according to the applicable specifications. The **Bureau** will determine the number of representative samples required.

(3) The **Manufacturer** or **Supplier** may request the **Bureau** to sample the **Finely Divided Mineral** prior to arrival in Illinois. In the event the request is approved, the **Manufacturer** or **Supplier** shall be responsible for payment of transportation, per diem (meals), lodging, and incidental travel costs incurred by the **Department** inspector. If the **Department** determines that it lacks the resources to accomplish out-of-state inspection, the **Finely Divided Mineral** may be sampled and tested according to the procedures in Section 5.3.

(4) **Acceptance (ACC) Samples** will be tested by the **Bureau** for conformance to Section 3.0, and to approve the **Finely Divided Mineral** for use on **Department** projects.

(5) **Random Investigation (INV) Samples** of **Finely Divided Minerals** may be obtained at final destination by a representative of the **Department**. The representative will either take or witness the taking of the **INV Samples**. **INV Samples** will be **Grab Samples** and will be taken according to the applicable specification. The sampling location and frequency for obtaining **INV Samples** will be determined by the **Bureau** in consultation with the district offices. The **Bureau** will use **INV Samples** to verify that the **Finely Divided Mineral** shipped meets the requirements of Section 3.0.

5.3 Sampling and Test Requirements for **Unapproved Sources** Located Outside North America:

An agent of the importer shall obtain an **Independent Assurance (IND) Grab Sample** from each barge of foreign **Finely Divided Mineral** loaded at the port of entry and destined for Illinois.

The agent shall split each barge **Grab Sample** and mail one portion to the **Bureau**. The other portion shall be mailed to the importer's testing laboratory that is approved by the **Department**. The importer of the **Finely Divided Mineral** shall be responsible for all sampling and mailing costs.

The importer's laboratory shall test its portion of each barge **Grab Sample** for the standard physical requirements of the applicable specifications. One random barge **Grab Sample**, representing the **Finely Divided Mineral** in each hold of the vessel shall be tested for chemical composition.

Upon completion of the tests, the importer shall deliver to the **Bureau** a certification that states the **Finely Divided Mineral** in the vessel unloaded at the port of entry has been tested by the importer, and complies with the applicable specifications. Attached to the certification shall be a test report of all barge samples. The report shall include the name of the vessel, the source of the **Finely Divided Mineral**, the barge number, the hold number, the date the sample was taken, the quantity of **Finely Divided Mineral** in the barge, and the physical and chemical test results obtained on the samples.

The importer shall immediately notify the **Bureau** if a barge sample fails to meet the applicable specification requirements.

The **Bureau** will review the certification and compare the importer's test data to the test data obtained by the **Bureau** on its portion of each split sample.

When the certification and the accompanying test report are examined and determined to be correct, the **Bureau** will notify the importer and the district offices that the **Finely Divided Mineral** is approved for state projects.

Random Investigation (INV) Samples, from one or more barges, may be taken by a **Department** inspector when the barges arrive at the Illinois terminal(s).

The **Department** will reject any foreign **Finely Divided Mineral** tested by the **Bureau**, or the importer, that does not meet the specification requirements. The **Department** may reject any barge of **Finely Divided Mineral** wherein the differences in test values, obtained by the **Department** and the importer on the split sample, exceeds the multilaboratory precision of the test method, but the **Finely Divided Mineral** is within specifications.

Alternative proposals to the sampling and test requirements stated in this section will be considered for **Finely Divided Minerals** which have an acceptable quality history, and which have previously been approved by the **Department**. Requests shall be directed to the **Bureau of Materials and Physical Research** for approval.

6.0 ACCEPTANCE OF FINELY DIVIDED MINERALS

6.1 **Finely Divided Minerals** will be accepted according to the **Department's** current "Standard Specifications for Road and Bridge Construction," current special provisions, and this policy memorandum.

6.2 The **Bureau** will maintain and circulate a current list of **Approved Sources** of **Finely Divided Minerals** which meet the requirements of this policy memorandum. This list will include the name, location, and Producer/Supplier Number of each approved **Manufacturer** or **Supplier** of **Finely Divided Minerals.** These **Manufacturers** or **Suppliers** may ship **Finely Divided Minerals** for immediate use on **Department** projects.

6.3 **Finely Divided Minerals** from **Unapproved Sources** will be approved by the **Bureau** before use on **Department** projects.

7.0 REJECTION OF FINELY DIVIDED MINERALS

7.1 A **Finely Divided Mineral** that fails to conform to the requirements of Section 3.0 of this policy memorandum shall be rejected for use on **Department** projects.

7.2 The **Bureau** will notify the **Manufacturer** or **Supplier** when a **Finely Divided Mineral** is rejected for use on **Department** projects.

David L. Lippert

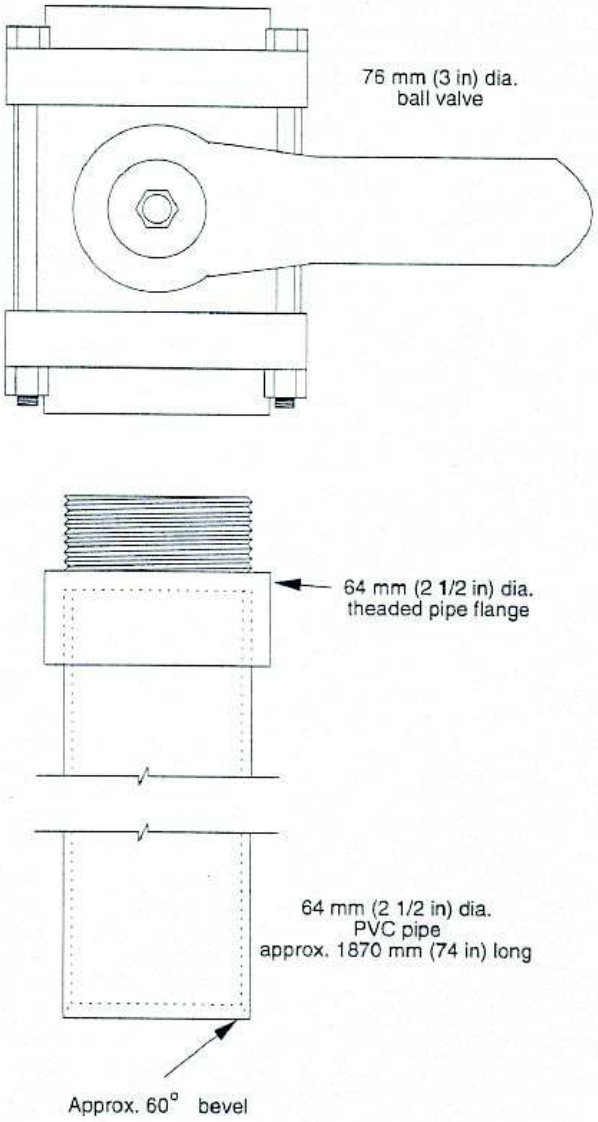
David L. Lippert, P.E.
Acting Engineer of Materials
and Physical Research

Attachment

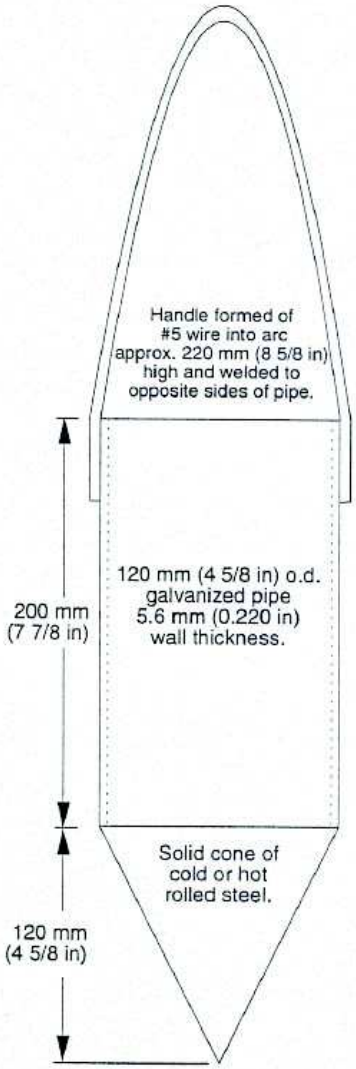
This policy memorandum supersedes Policy Memorandum 06-03 dated January 1, 2006.	

DAD/dt

Vacuum Type Bulk Cement Sampler

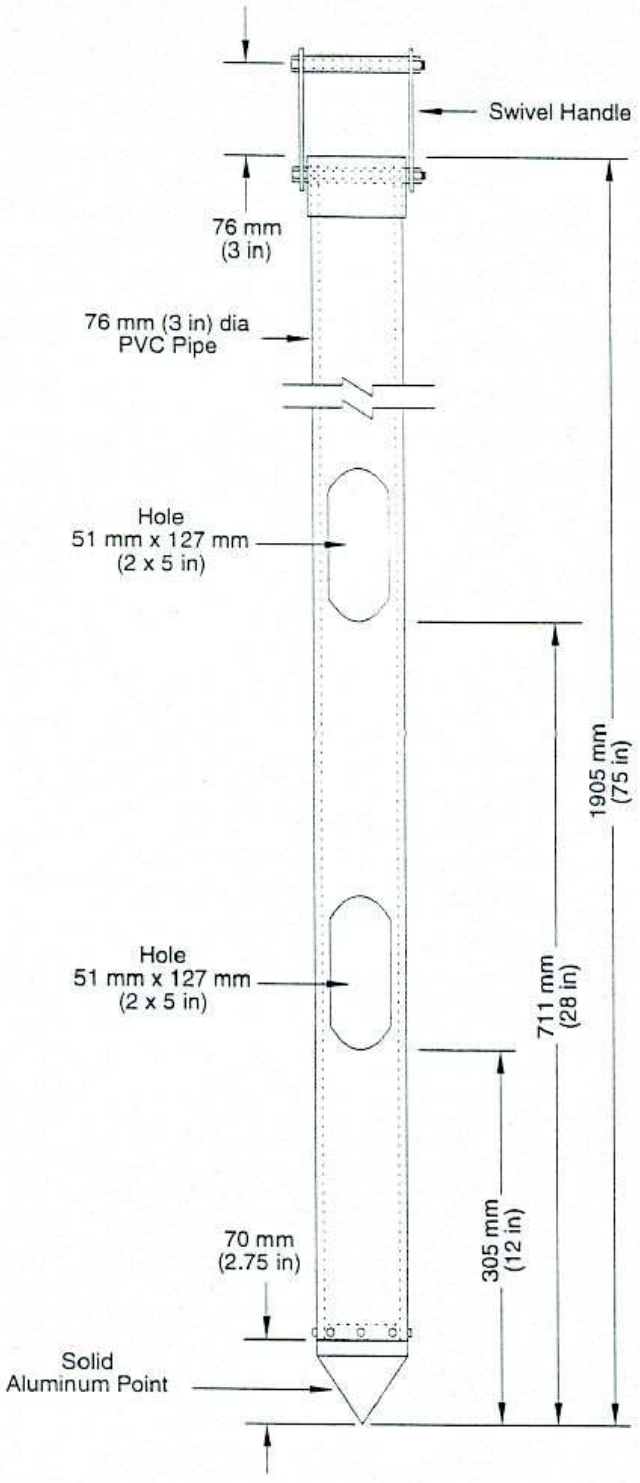


Drop Type Bulk Cement Sampler



Note:
Total mass weight of sampler not less than 6 kg (13 lb)

Tube Type Bulk Cement Sampler



APPENDIX A

BITUMINOUS WORKSHEET

Airport: _____ Project No.: _____ AIP No.: _____

Mix Design # : _____ Material Code: _____ Producer: _____
Prod. #: _____

AGGREGATE

Mat'l. Code: _____ _____ _____ _____ _____

Producer #: _____ _____ _____ _____ _____

Prod. Name _____ _____ _____ _____ _____

Location: _____ _____ _____ _____ _____

Percent Passing

Sieve Size					
1 inch					
3/4 inch					
½ inch					
3/8 inch					
No. 4					
No. 8					
No. 16					
No. 30					
No. 50					
No. 100					
No. 200					
Washed (y/n)					
O.D. Gravity					
App. Gravity					
Absorption					

Asphalt Gravity_____Asphalt Source_____Asphalt Producer No._____

MARSHALL DATA

% Asphalt					
M. Stability					
Flow					
D					
0					
% Air Voids					

Q.C. Manager Name: _____ Phone number: _____

Laboratory Location: _____ Fax Number: _____

Remarks: _____

Bituminous Mixture Daily Plant Output

Date:

Tons/Hr.	Batch Wt.	Batches	Loads	Tons	Mix No.
AC Prod.	Material	% Mix	Add Prod	Material	% AC
Temp. (F)	Agg Drier	Agg Bin	Asphalt	Bit. Mix	Bit. Mix
Max					(RE/RT)
Min					
Wtd. Avg.					

Airport:

Ill. Project:

AIP Project

Consultant:

Contractor:

Producer

Mix Time	Dry	Wet	Total	Plant Oper.	Start	Stop	Delays	Hrs
Contract		Job No.	Qnty	Contract		Job No.	Qnty.	

Remarks

Bin		RAP	Bin 5	Bin 4	Bin 3	Bin 2	Bin 1	M.F.	New Bit	Wash	Changed
Mix %											
Lb/Bt-Rev										Mix	Spec
Agg %									% Pass	Form	Range
1.5	Wt %										
	% Bin										
1	Wt %										
	% Bin										
3/4	Wt %										
	% Bin										
1/2	Wt %										
	% Bin										
3/8	Wt %										
	% Bin										
4	Wt %										
	% Bin										
8	Wt %										
	% Bin										
16	Wt %										
	% Bin										
30	Wt %										
	% Bin										
50	Wt %										
	% Bin										
100	Wt %										
	% Bin										
200	Wt %										
	% Bin										
Bit.											

AC - Prod	Ac-Code	Ticket	Date	Qnty	AC-Prod	AC-Code	Ticket	Date	Qnty	

Bituminous Mixtures Extraction

Date: _____

Airport: _____ Consultant: _____

Illinois Project: _____ Contractor: _____

AIP Project No.: _____ Producer: _____

Mix #: _____ Dry Time: _____ Lot: _____ Sublot: _____

Type: _____ Washed: _____

Sieve	Wt.	Accum. Wt.	% Passing	Mix Formula	Tolerance	Spec Range
1.5						
1						
3/4						
1/2						
3/8						
4						
8						
16						
30						
50						
100						
200						
Tot Agg						
Bit						

Extraction Data		
Pan, New Filter & Sample	g	
Pan & New Filter	g	
Sample	g	
Pan, Used Filter, Aggregate	g	
Pan & New Filter	g	
Aggregate	g	
Pan & Used Filter	g	
Pan & New Filter	g	
Dust in Filter	g	
Sample	g	
Aggregate	g	
Bitumen	g	

New Bit:	Marshall Stab:	Blows:	Gyro:	Flow:	TSR:
Bulk SPGR:	Max SPGR:	% Voids:	DEN (PCF):		

Remarks: _____

CC: _____ Tested by: _____ AERM-11

Bituminous Testing Summary

Project: _____ Illinois Project: _____ Airport: _____

AIP Proj.: _____ Mix Design No.: _____ Contractor: _____

Producer: _____ Remarks: _____

Extraction Data | Marshall Data

Date Placed	Lot/ Sublot	Sieve JMF	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	% AC	Stab.	Flow	d'	D'	Voids
	Test Section																		

APPENDIX B

QUALITY CONTROL TESTING (PLANT)

PARAMETER	FREQUENCY	SAMPLE SIZE	TEST METHOD	REPORT FORM
Aggregate Gradations: Hot bins for batch and continuous plants--- Individual cold-feeds or combined belt-feeds for drier drum plants.	Minimum 1 per day of production and at least 1 per 1000 tons.	CA07/11: 5000 gm CA13: 2000 gm CA16: 1500 gm Fine agg: 500 gm 1 gallon asphalt cement	ASTM C 136	AER M-9
Aggregate gradations: Stockpiles	Minimum 1 per aggregate per week per stockpile.	CA07/11: 5000 gm CA13: 2000 gm CA16: 1500 gm Fine agg: 500 gm *Note: The above test sample sizes are to be obtained from splitting down a larger sample from the stockpiles.	ASTM C 136	AER M-9
Maximum Specific Gravity	Minimum 1 per 1000 tons	1200 gm per test	ASTM D 2041	AER M-11 and AERM-14
Bulk Specific Gravity	Minimum 1 per 1000 tons	1250 gm per briquette	ASTM D 2726	AER M-11 and AERM-14
Marshall Stability and Flow	Minimum 1 per 1000 tons	1250 gm per briquette	ASTM D 1559	AER M-11 and AERM-14
% Air Voids	Minimum 1 per 1000 tons		ASTM D 3203	AER M-11 and AERM-14
Extraction	Minimum 1 per 1000 tons	1000 gm (surface) 1500 gm (base)	ASTM D 2172	AER M-11 and AERM-14
Ignition Oven Test	Minimum 1 per 1000 tons	1500 gm		AER M-14
Nuclear Asphalt Gauge	Minimum 1 per 1000 tons	1000-1100 gm	ASTM D 2145	AER M-14

MIX DESIGN TESTING

PARAMETER	FREQUENCY	SAMPLE SIZE	TEST METHOD	REPORT FORM
Representative samples of each aggregate and asphalt cement.	1 per aggregate and 1 asphalt cement.	280 lb. (coarse) 150 lb. (fine) 15 lb. (min. filler) 1 gallon asphalt cement	ASTM D 75	N/A
Aggregate Gradation	1 per aggregate	CA07/11: 5000 gm CA13: 2000 gm CA16: 1500 gm Fine agg: 500 gm	ASTM C 136	Bituminous Worksheet (Appendix A)
Maximum Specific Gravity	2 per specified asphalt content	1200 gm per test	ASTM D 2041	Bituminous Worksheet (Appendix A)
Bulk Specific Gravity	3 briquettes per specified asphalt content	1250 gm per briquette	ASTM D 2726	Bituminous Worksheet (Appendix A)
Marshall Stability and Flow	3 briquettes	1250 gm per briquette	ASTM D 1559	Bituminous Worksheet (Appendix A)
% Air Voids	1 per specified asphalt content (Avg. of G_{sb}/G_{mm})		ASTM D 3203	Bituminous Worksheet (Appendix A)

QUALITY CONTROL TESTING (PAVER)

PARAMETER	FREQUENCY	SAMPLE SIZE	TEST METHOD	REPORT FORM
Nuclear Density Test	As required by the Contractor to maintain consistent passing density	Various locations	ASTM D 2950	

APPENDIX C

AGGREGATE BITUMINOUS BASE COURSE

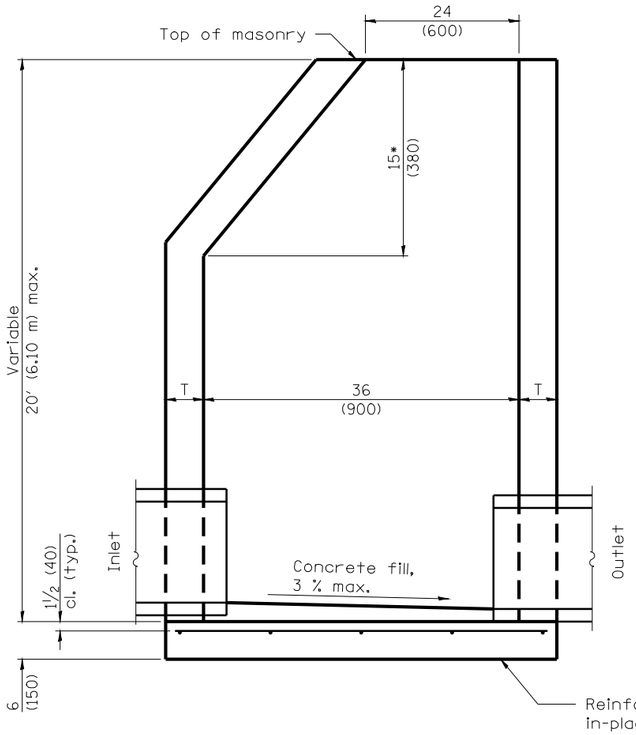
Percentage by Weight Passing Sieves Job Mix Formula (JMF)		
Sieve Size	**Gradation B Range 1" Maximum**	**Ideal Target**
1-1/4 in.	---	---
1 in.	100	100
3/4 in.	93 – 97	95
1/2 in.	75 – 79	77
3/8 in.	64 – 68	66
No. 4	45 – 51	48
No. 8	34 – 40	37
No. 16	27 – 33	30
No. 30	19 – 23	21
No. 100	6 – 10	8
No. 200	4 – 6	5
Bitumen %: Stone	4.5 – 7.0	5.5

AGGREGATE BITUMINOUS SURFACE COURSE

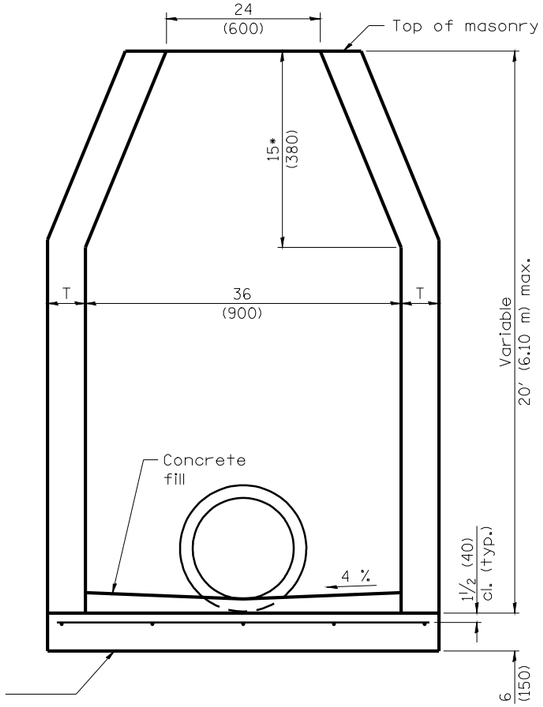
Percentage by Weight Passing Sieves Job Mix Formula (JMF)		
Sieve Size	**Gradation B Range ¾" Maximum**	**Ideal Target**
1 in.	**100**	**---**
3/4 in.	**100**	**100**
1/2 in.	**99 - 100**	**100**
3/8 in.	**91 - 97**	**94**
No. 4	**56 – 62**	**59**
No. 8	**36 - 42**	**39**
No. 16	**27 - 32**	**30**
No. 30	**19 - 25**	**22**
No. 100	**7 – 9**	**8**
No. 200	**5 – 7**	**6**
Bitumen %: Stone	**5.0 – 7.0**	**6.0**

IDOT STANDARD DETAILS

* For precast reinforced concrete sections, this dimension may vary from the dimension given to plus 6 (150).

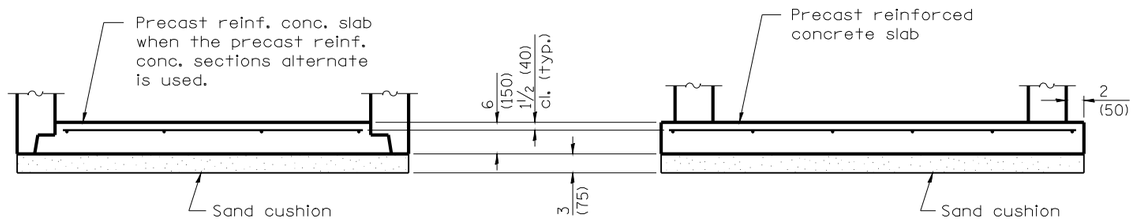


ELEVATION – ECCENTRIC



ELEVATION – CONCENTRIC

ALTERNATE MATERIALS FOR WALLS	T (min.)
Concrete Masonry Unit	5 (125)
Brick Masonry	8 (200)
Precast Reinforced Concrete Section	3 (75)
Cast-in-Place Concrete	6 (150)



ALTERNATE BOTTOM SLAB

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.20 sq. in./ft. (420 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602601 for optional Precast Reinforced Concrete Flat Slab Top.

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

Illinois Department of Transportation

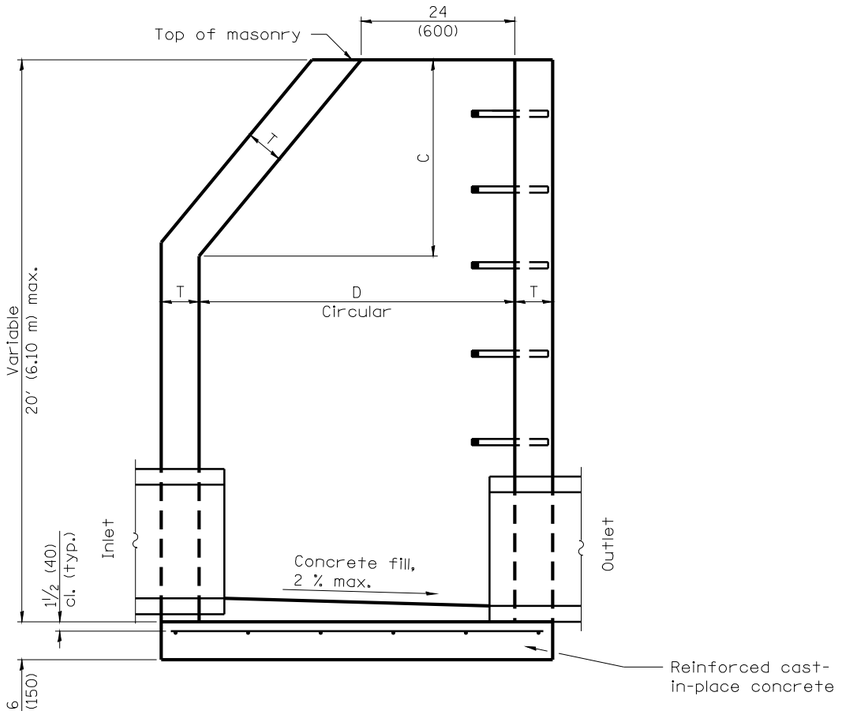
PASSED January 1, 2011
Michael Brand
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2011
Scott Esch
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

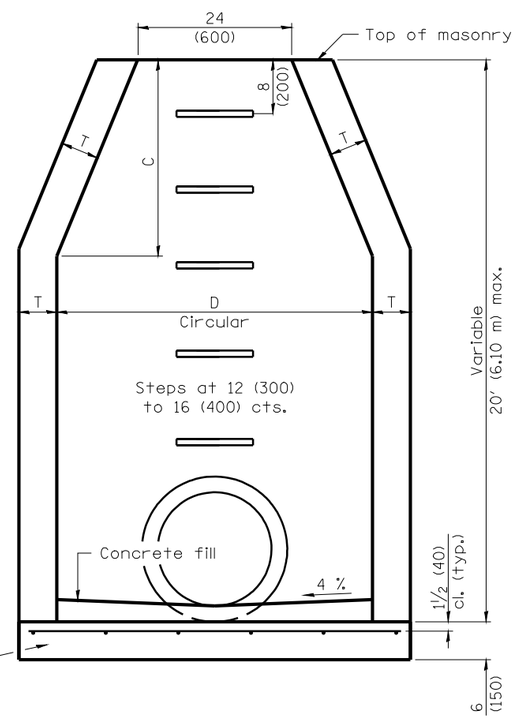
DATE	REVISIONS
1-1-11	Detailed rein. in slabs.
	Added max. limit to height.
	Revised general notes.
1-1-09	Switched units to
	English (metric).

INLET – TYPE B

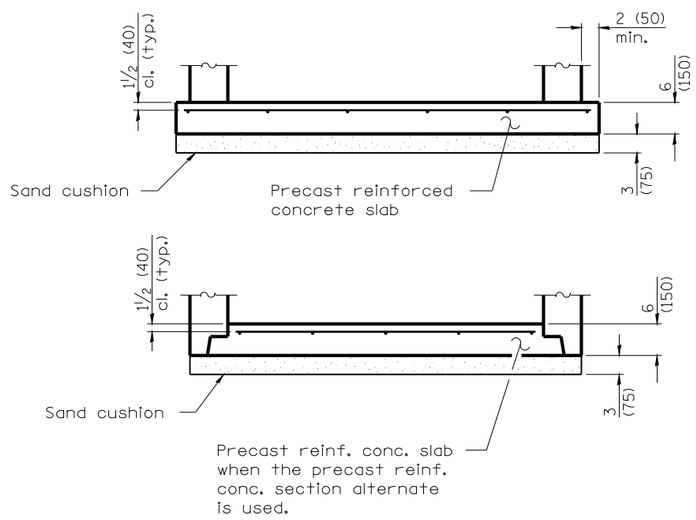
STANDARD 602306–03



ELEVATION – ECCENTRIC



ELEVATION – CONCENTRIC



ALTERNATE BOTTOM SLAB

ALTERNATE MATERIALS FOR WALLS	D	C*	T (min.)
Concrete Masonry Unit	4'-0'' (1.2 m) 5'-0'' (1.5 m)	30 (750) 3'-9'' (1.15 m)	5 (125) 5 (125)
Brick Masonry	4'-0'' (1.2 m) 5'-0'' (1.5 m)	30 (750) 3'-9'' (1.15 m)	8 (200) 8 (200)
Precast Reinforced Concrete Section	4'-0'' (1.2 m) 5'-0'' (1.5 m)	30 (750) 3'-9'' (1.15 m)	4 (100) 5 (125)
Cast-in-place Concrete	4'-0'' (1.2 m) 5'-0'' (1.5 m)	30 (750) 3'-9'' (1.15 m)	6 (150) 6 (150)

* For precast reinforced concrete sections, dimension "C" may vary from the dimension given to plus 6 (150).

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.31 sq. in./ft. (660 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602701 for details of steps.

See Standard 602601 for optional Precast Reinforced Concrete Flat Slab Top.

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

Illinois Department of Transportation

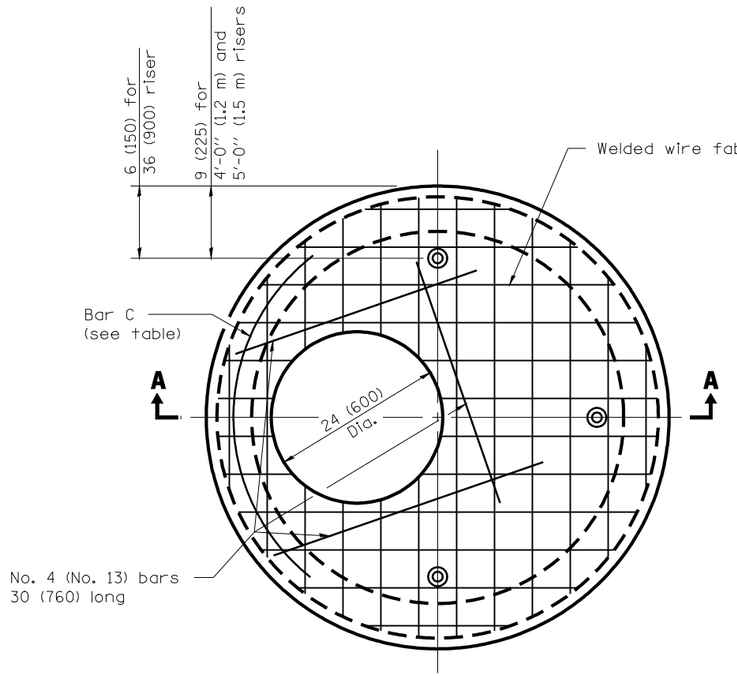
PASSED January 1, 2011
Michael Brand
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2011
Scott Esch
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

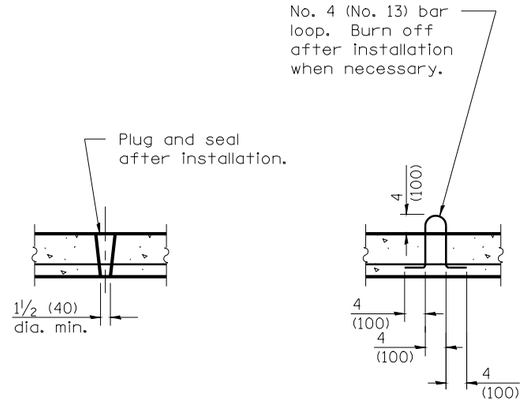
DATE	REVISIONS
1-1-11	Detailed rein. in slabs.
	Added max. limit to height.
	Revised general notes.
1-1-09	Switched units to
	English (metric).

MANHOLE TYPE A

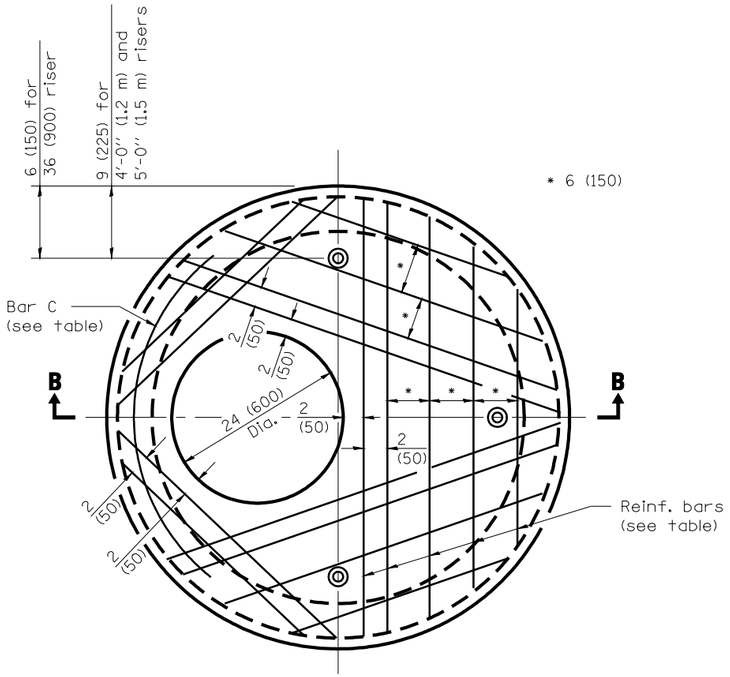
STANDARD 602401–03



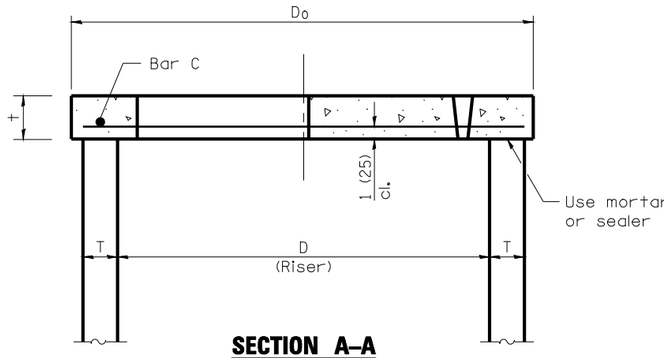
PLAN
(WELDED WIRE FABRIC)



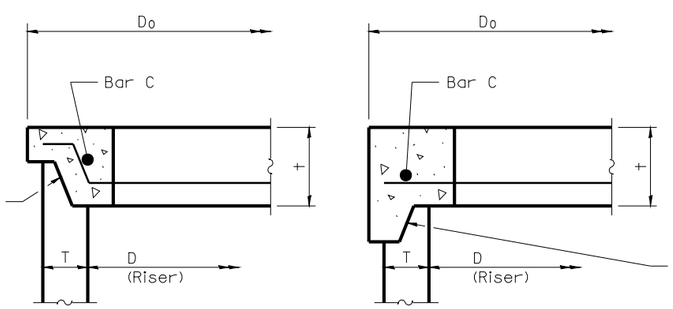
LIFTING HOLE OR LIFTING LOOP
TYPICAL
(3 required per slab)



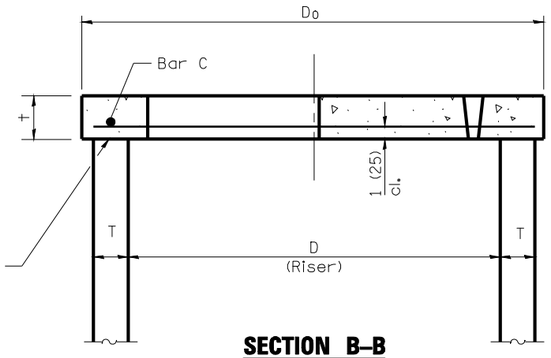
PLAN
(REINFORCEMENT BARS)



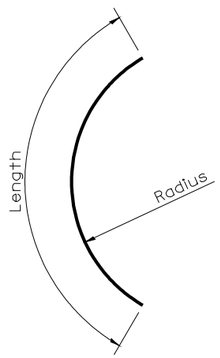
SECTION A–A



ALTERNATE JOINT CONFIGURATIONS



SECTION B–B



BAR C

TABLE

D	T	D_o (min.)	†	Reinforcement "A_s" W.W.F. each direction	OR Bar size	No. 4 (No. 13) Bar C Length	Radius
36 (900)	See applicable Standards	D + 2T	6 (150)	0.20 sq. in./ft. (425 sq. mm/m)	No. 4 (No. 13)	4'-0" (1.2 m)	19 (480)
4'-0" (1.2 m)			6 (150)	0.35 sq. in./ft. (740 sq. mm/m)	No. 5 (No. 16)	4'-6" (1.35 m)	26 (660)
5'-0" (1.5 m)			8 (200)	0.35 sq. in./ft. (740 sq. mm/m)	No. 5 (No. 16)	5'-0" (1.5 m)	32 (810)

GENERAL NOTES

The flat slab top may be used in lieu of the tapered tops shown on Standards 602001, 602011, 602016, 602306, 602401, or 602501 at the option of the Contractor or when field conditions prohibit the use of tapered tops.

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

Illinois Department of Transportation

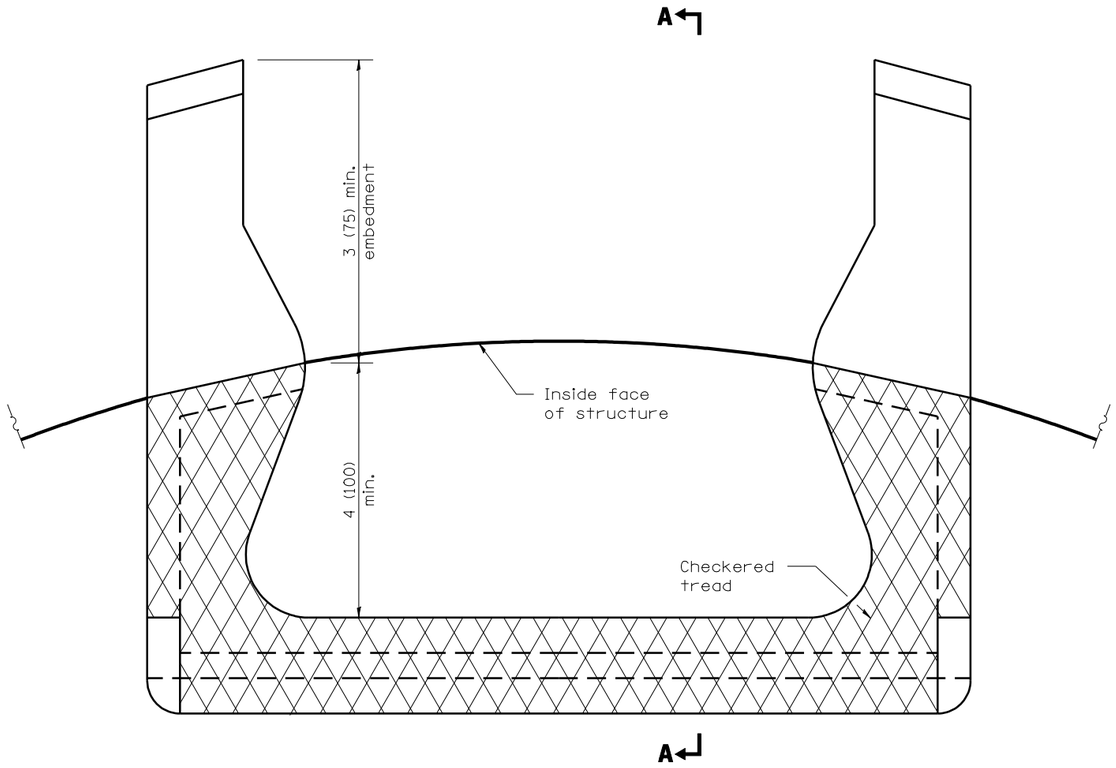
PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

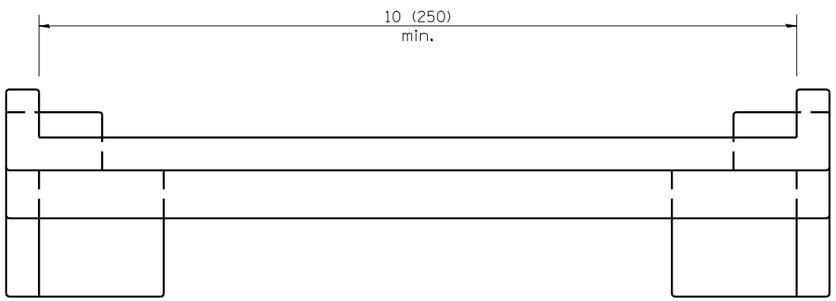
DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-07	Soft converted metric
	reinforcement bars.

PRECAST REINFORCED CONCRETE FLAT SLAB TOP

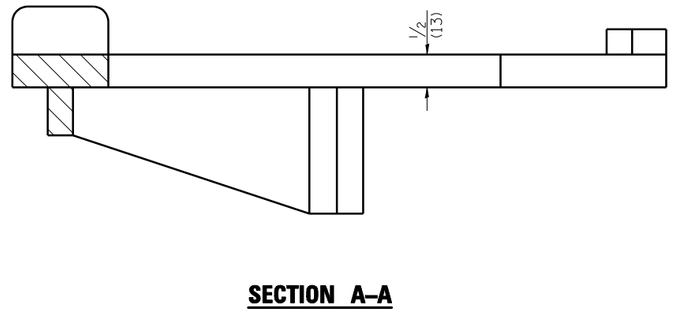
STANDARD 602601–02



PLAN VIEW



ELEVATION VIEW



SECTION A–A

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

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

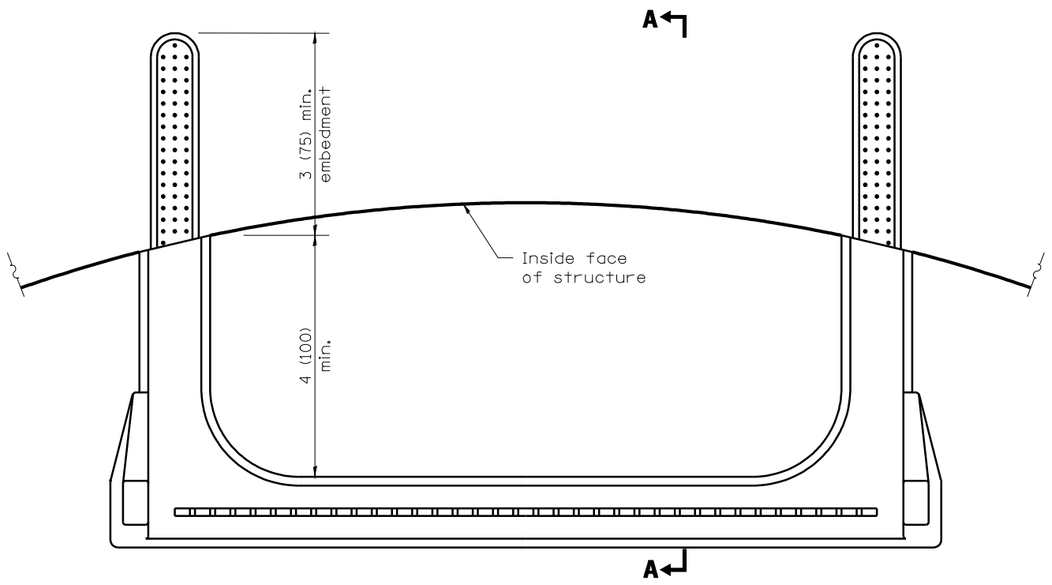
ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
4-1-06	Revised title, drawings,
	and added plastic
	steps on sheet 2.

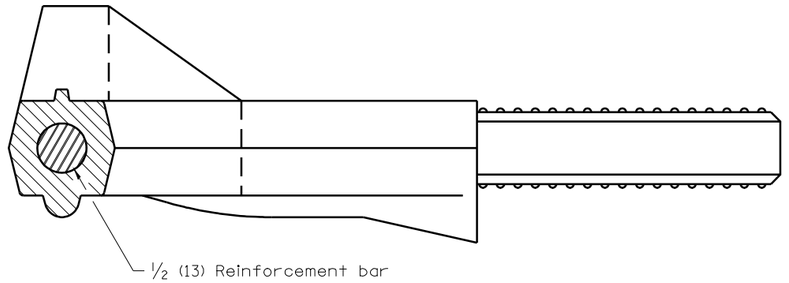
MANHOLE STEPS

(Sheet 1 of 2)

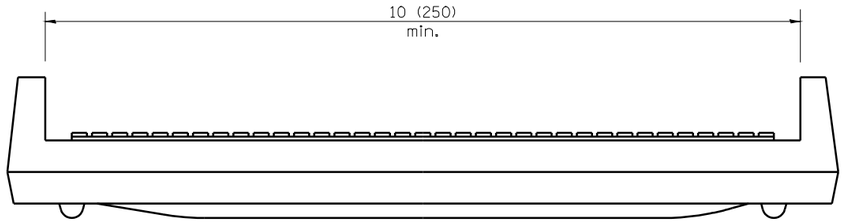
STANDARD 602701–02



PLAN VIEW



SECTION A–A



ELEVATION VIEW

Illinois Department of Transportation

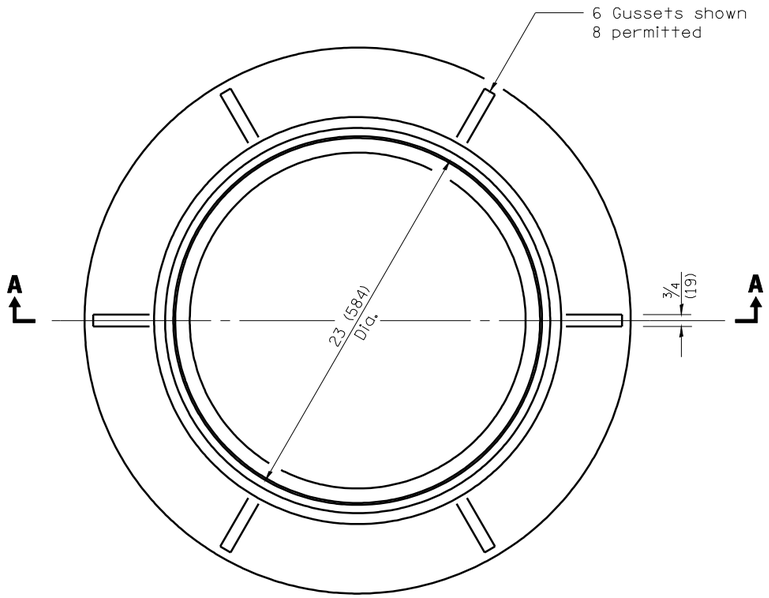
PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

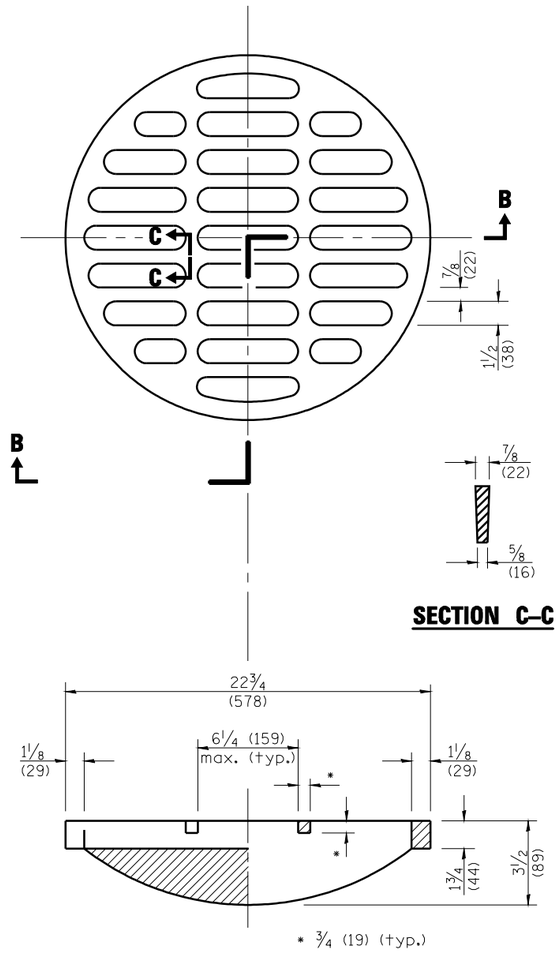
MANHOLE STEPS

(Sheet 2 of 2)

STANDARD 602701–02

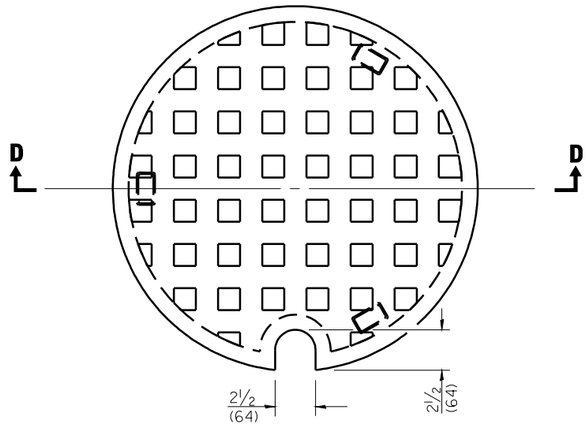


CAST FRAME

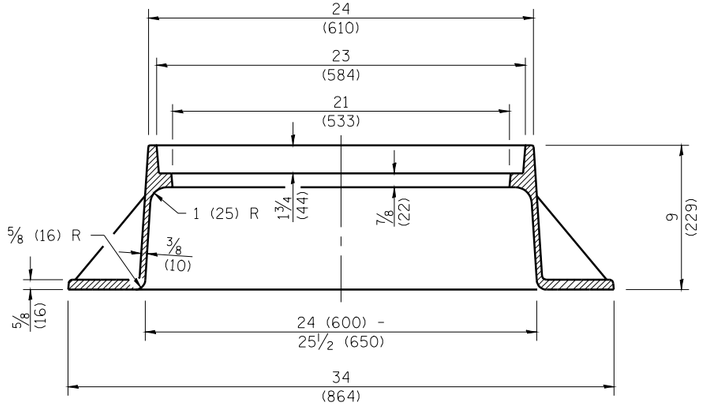


SECTION B–B

SECTION C–C



SECTION D–D



SECTION A–A

Gray Iron

CAST OPEN LID

CAST CLOSED LID

Gray Iron Lid

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

Illinois Department of Transportation

PASSED January 1, 2009

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2009

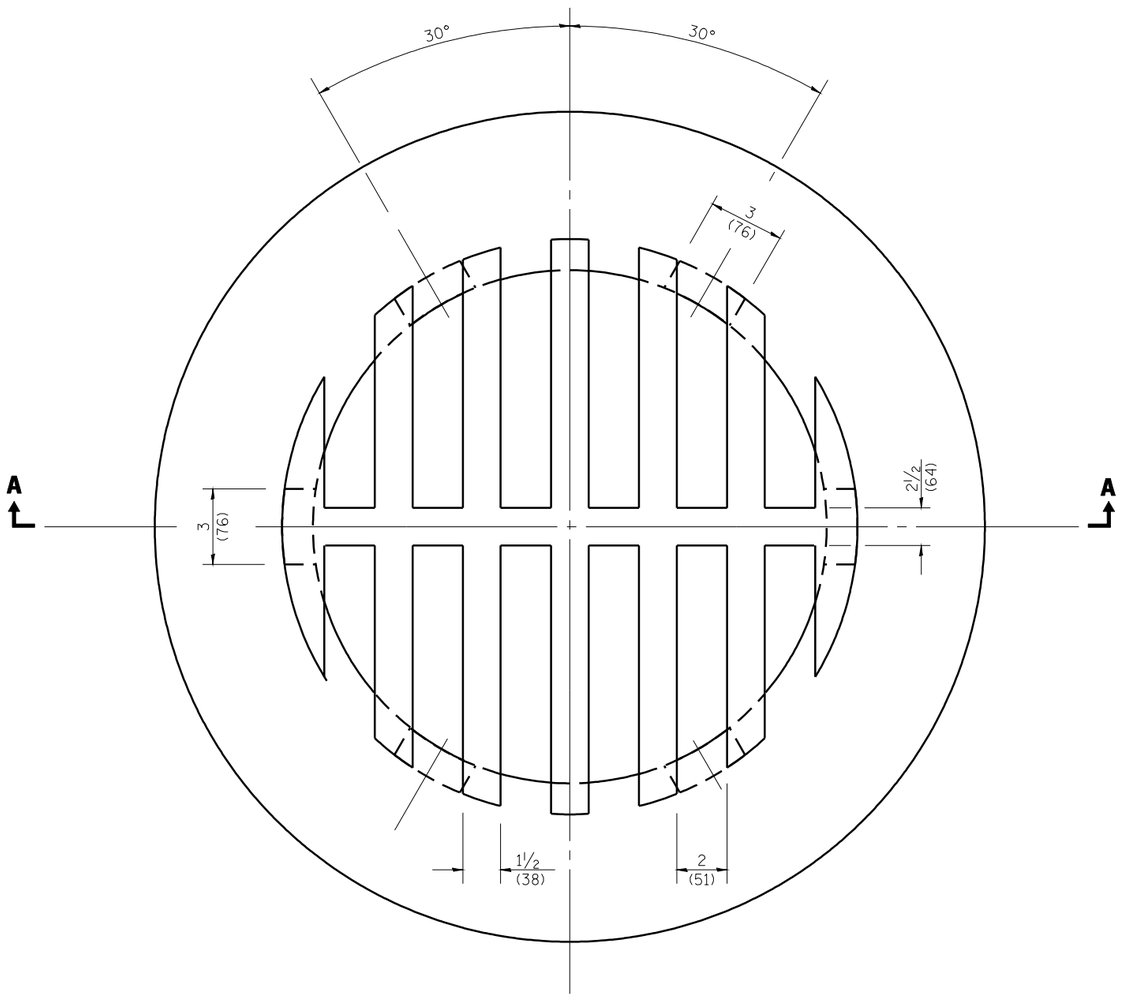
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

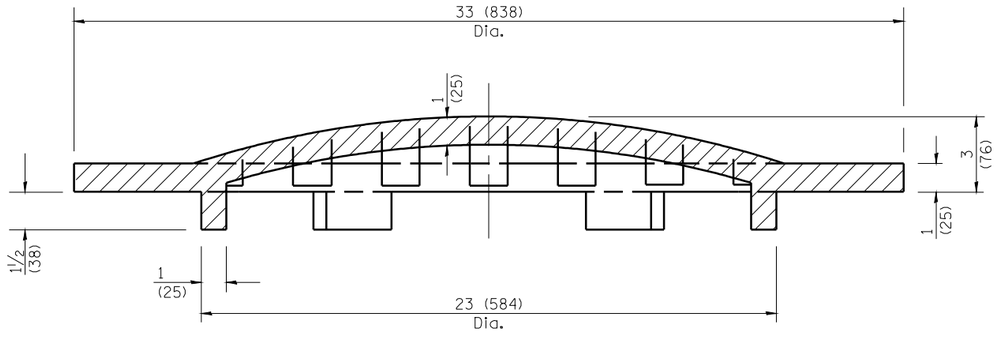
DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-04	Removed weights.

FRAME AND LIDS TYPE 1

STANDARD 604001–03



CAST GRATE



SECTION A–A

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

Illinois Department of Transportation

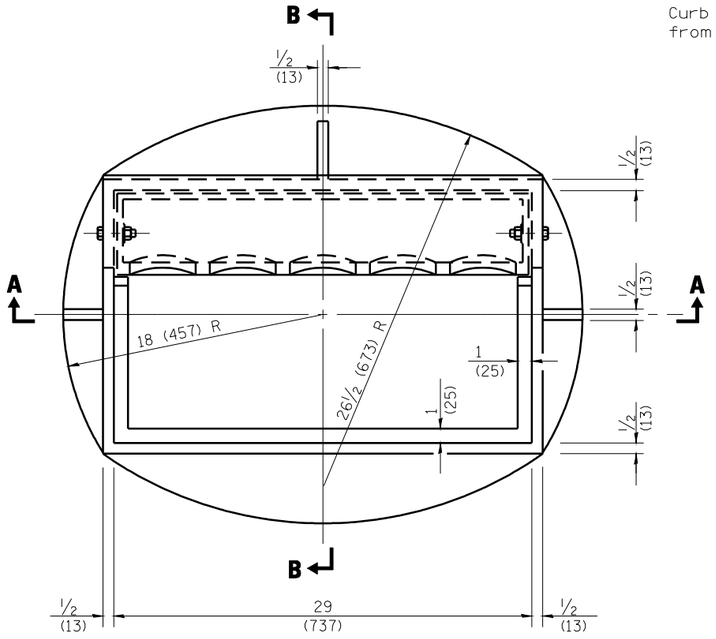
PASSED January 1, 2009
Michael Brand
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
Scott Bush
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

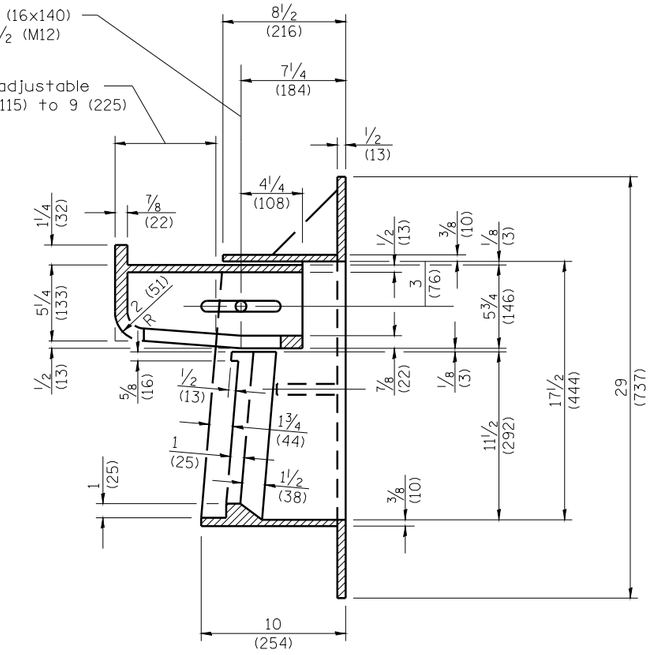
DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-04	Removed weights.

GRATE TYPE 8

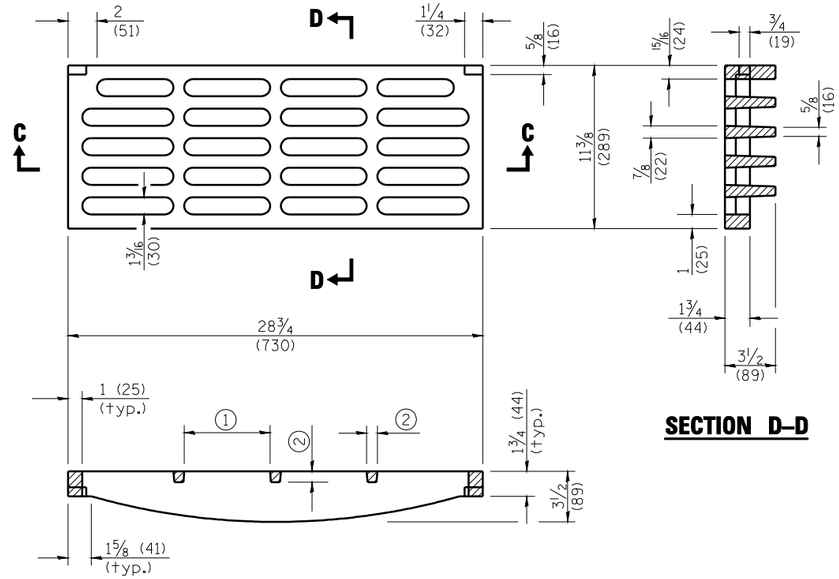
STANDARD 604036–02



CAST FRAME



SECTION B–B



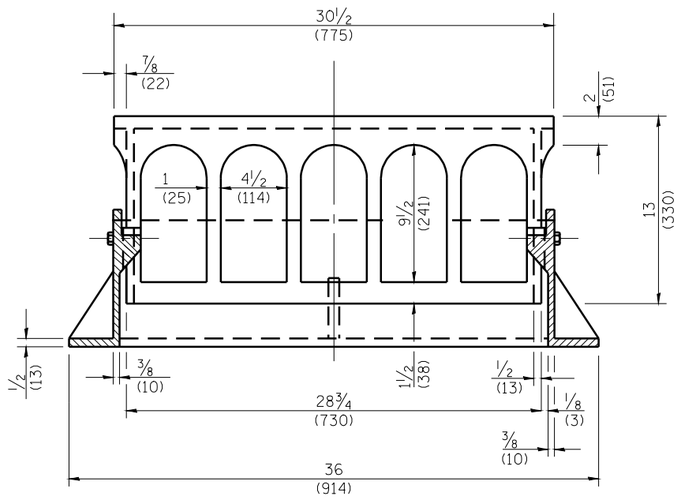
SECTION D–D

SECTION C–C

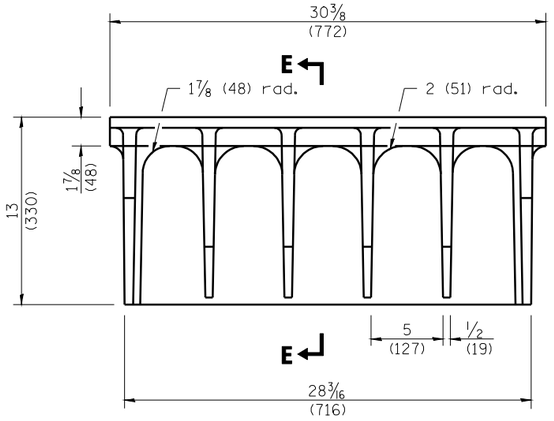
① = 6 1/4 (159) max. (typ.)

② = 3/4 (19) min. (typ.)

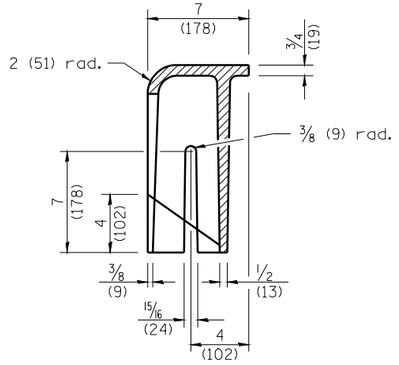
CAST GRATE



SECTION A–A



ALTERNATE CURB BOX



SECTION E–E

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

Illinois Department of Transportation

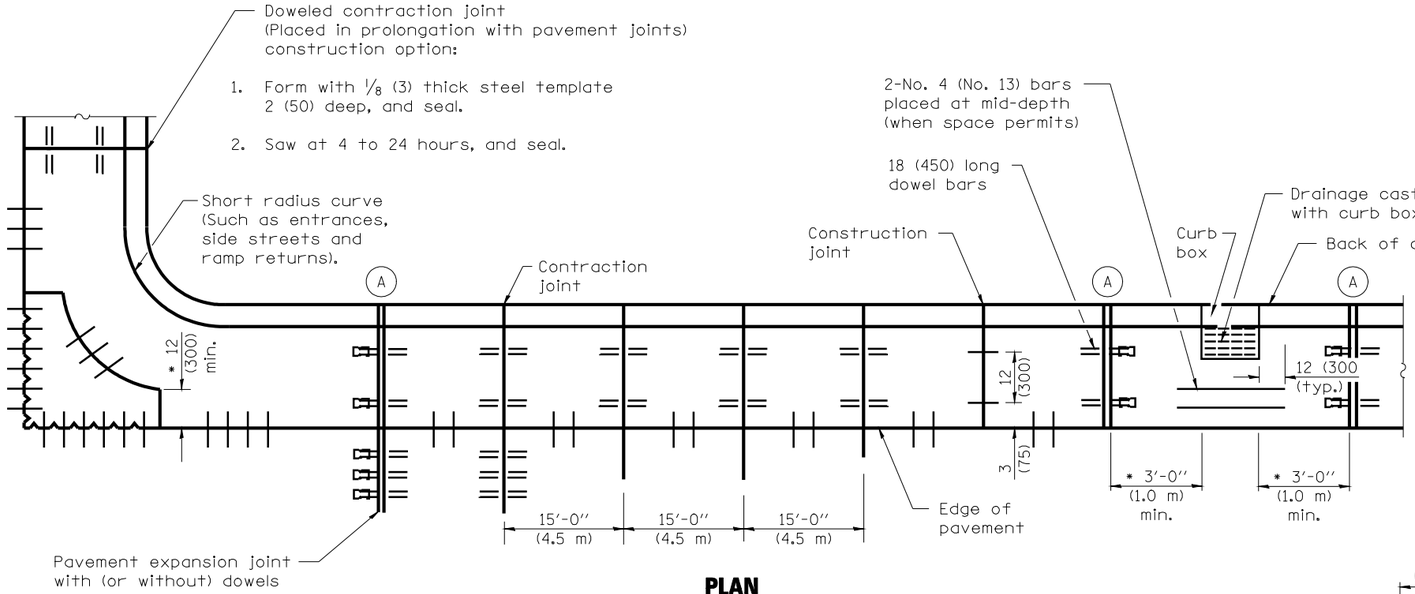
PASSED January 1. 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1. 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

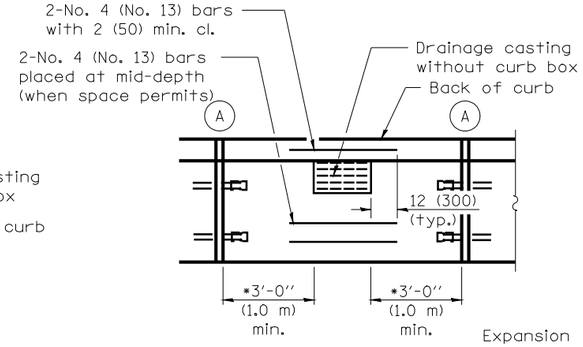
DATE	REVISIONS
4-1-09	Switched units to
	English (metric).
4-1-06	Added alternate curb
	box.

FRAME AND GRATE TYPE 11

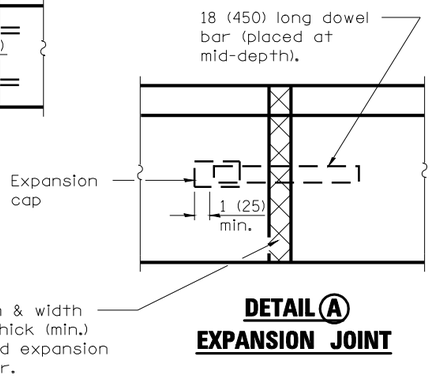
STANDARD 604051–03



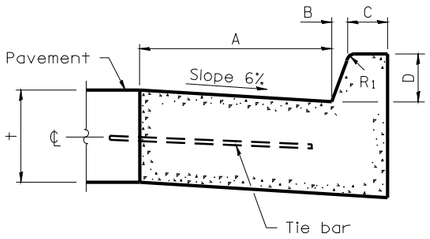
PLAN
ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE



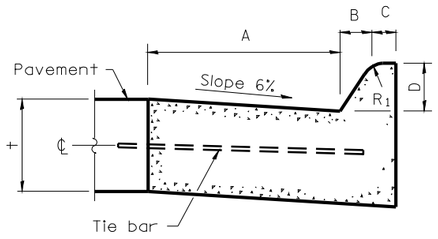
* This dimension shall be adjusted to align with joint on the adjacent pavement



DETAIL Ⓐ
EXPANSION JOINT



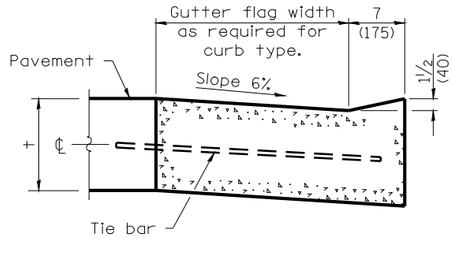
BARRIER CURB



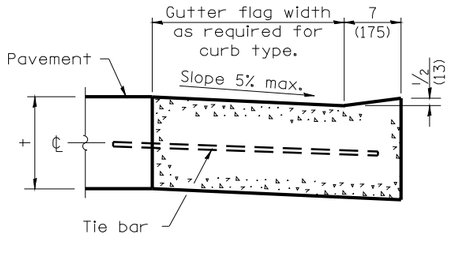
MOUNTABLE CURB

TABLE OF DIMENSIONS BARRIER CURB					
TYPE	A	B	C	D	R_1
B-6.12 (B-15.3)	12 (300)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.18 (B-15.45)	18 (450)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.24 (B-15.60)	24 (600)	1 (25)	6 (150)	6 (150)	1 (25)
B-9.12 (B-22.30)	12 (300)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.18 (B-22.45)	18 (450)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.24 (B-22.60)	24 (600)	2 (50)	5 (125)	9 (225)	1 (25)

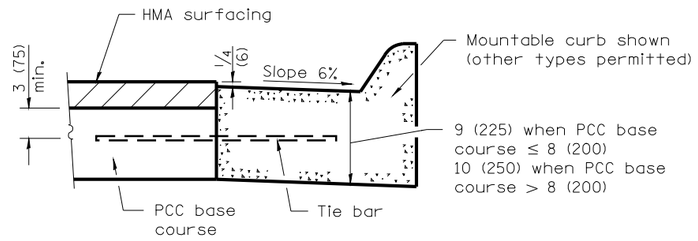
TABLE OF DIMENSIONS MOUNTABLE CURB						
TYPE	A	B	C	D	R_1	R_2
M-2.06 (M-5.15)	6 (150)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-2.12 (M-5.30)	12 (300)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-4.06 (M-10.15)	6 (150)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.12 (M-10.30)	12 (300)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.18 (M-10.45)	18 (450)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.24 (M-10.60)	24 (600)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-6.06 (M-15.15)	6 (150)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.12 (M-15.30)	12 (300)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.18 (M-15.45)	18 (450)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.24 (M-15.60)	24 (600)	6 (150)	2 (50)	6 (150)	2 (50)	NA



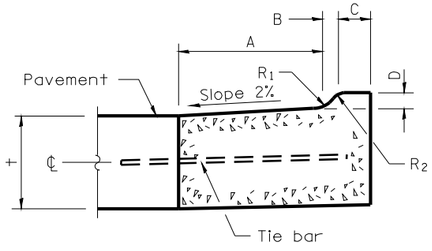
DEPRESSED CURB (TYPICAL)



DEPRESSED CURB ADJACENT TO CURB RAMP ACCESSIBLE TO THE DISABLED



ADJACENT TO PCC BASE COURSE WITH HMA SURFACING



M–2.06 (M–5.15) and M–2.12 (M–5.30)

GENERAL NOTES

The bottom slope of combination curb and gutter constructed adjacent to pcc pavement shall be the same slope as the subbase or 6% when subbase is omitted.

t = Thickness of pavement.

Longitudinal joint tie bars shall be No. 6 (No. 19) at 24 (600) centers in accordance with details for longitudinal construction joint shown on Standard 420001.

A minimum clearance of 2 (50) between the end of the tie bar and the back of the curb shall be maintained.

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

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

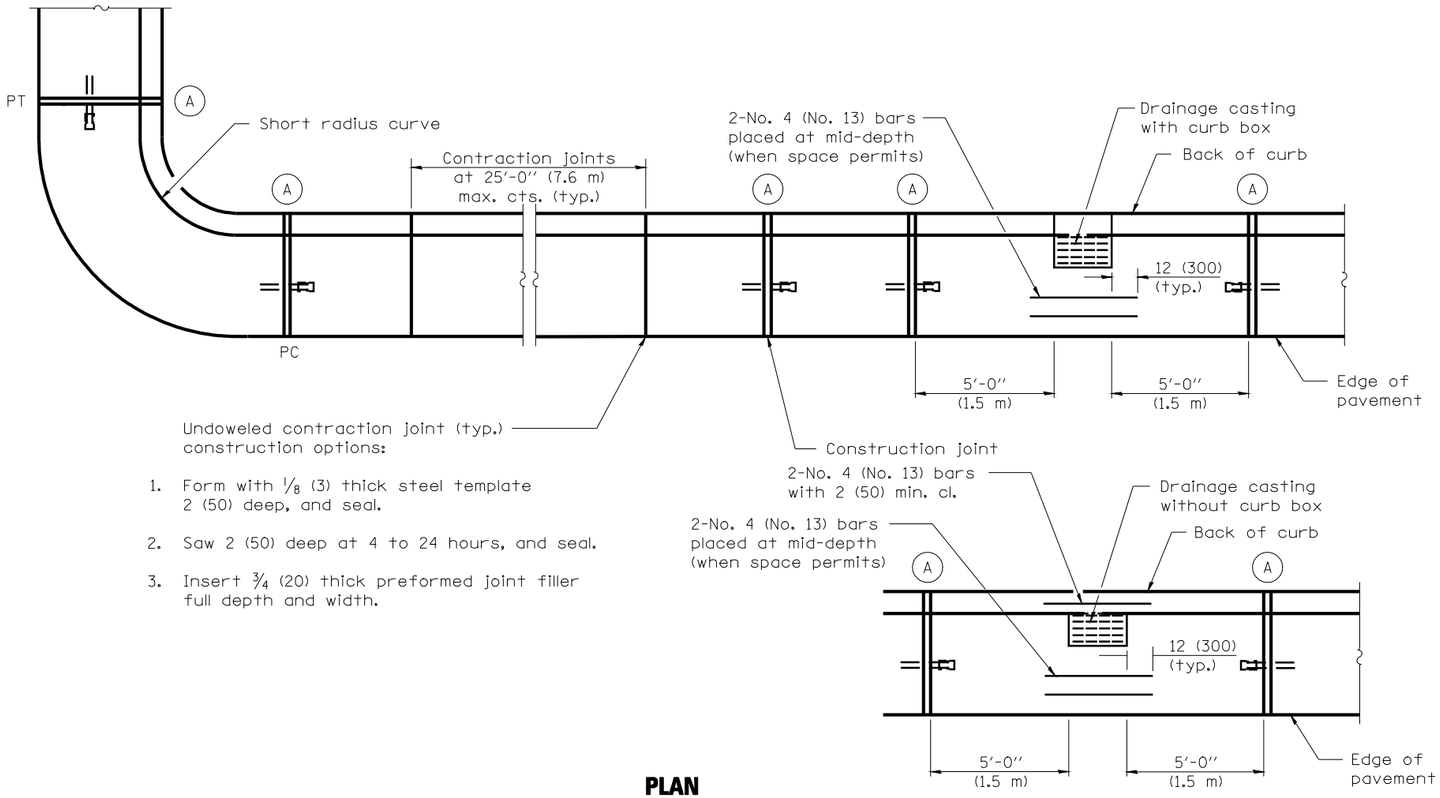
ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-07	Switched to Hot-Mix
	Asphalt (HMA)
	terminology.

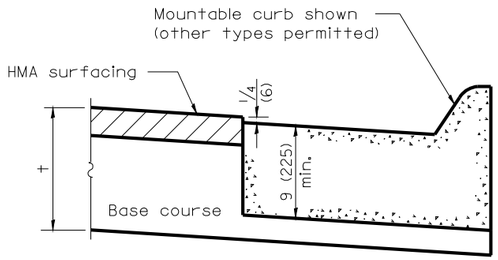
CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER

(Sheet 1 of 2)

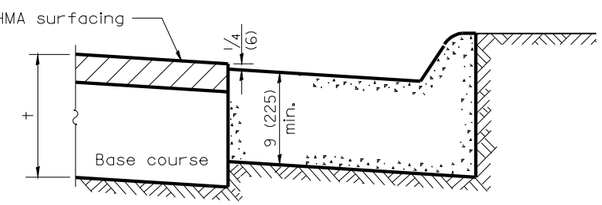
STANDARD 606001–04



PLAN

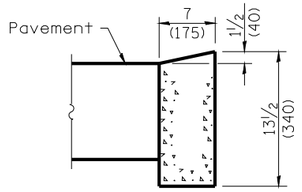


ON DISTURBED SUBGRADE

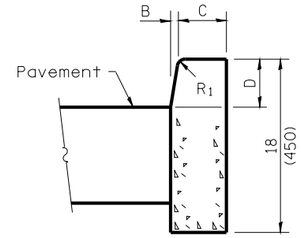


ON UNDISTURBED SUBGRADE

ADJACENT TO FLEXIBLE PAVEMENT

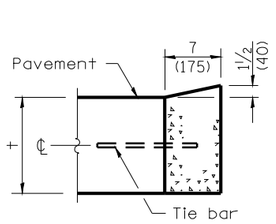


DEPRESSED CURB

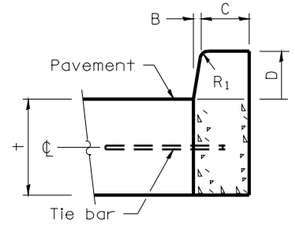


BARRIER CURB

ADJACENT TO FLEXIBLE PAVEMENT



DEPRESSED CURB



BARRIER CURB

ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE

CONCRETE CURB TYPE B

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER

(Sheet 2 of 2)

STANDARD 606001–04

APPENDIX A

NATIONAL GEODETIC SURVEY – BENCH MARK RESET PROCEDURES
(MAY 2007)

Bench Mark Reset Procedures

Guidelines to preserve elevation data for a ***soon-to-be disturbed*** or ***soon-to-be destroyed*** bench mark

Documented by
Curtis L. Smith
National Geodetic Survey
Silver Spring MD 20910
May 2007

NATIONAL GEODETIC SURVEY
United States Department Of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

Contents

Guidelines

Relocating Vertical Control Bench Marks

The purpose of these guidelines is to provide the necessary information to preserve elevation data for a soon-to-be disturbed or soon-to-be destroyed bench mark[1]**.** It is imperative that elevation information be transferred or referenced from the original bench mark prior to its being disturbed or destroyed. Note that such destruction or disturbance remains illegal (18 USC Sec. 1858). However, that law has long been recognized as more of a deterrent than an enforceable statute. NGS understands that bench mark resets will occur, despite the law, and therefore recognizes the need for a document to define standards for such resets. The support and cooperation of local surveyors and engineers is not only important, but essential to preservation of bench marks.

Each vertical control bench mark represents a large investment of resources. Since it is intended for a bench mark to provide a continuous record of elevation changes, as well as vertical control for many local surveyors, its preservation is vital. Although bench marks are constructed in locations where they are less likely to be disturbed, many are disturbed or destroyed by: highway rebuilding and retrofitting; railroad maintenance; urban development; addition of buried utilities; and building construction and demolition.

If an existing U.S. Coast and Geodetic Survey (USC&GS), National Geodetic Survey (NGS), U.S. Geological Survey (USGS), or other agency bench mark whose geodetic information resides in the database on the NGS Internet site (available at www.ngs.noaa.gov) is about to be disturbed or destroyed, a representative of NGS should be contacted for further information and direction to reset the monument. Points of contact for many states are listed under the State Advisors link on the NGS Internet site (also see page 10 of this document; contact NGS directly if your state is not listed). Typical reset bench marks are published as 3rd Order elevations, due to the single bench mark reference to determine elevation. Refer to Attachment A for minimum requirements to maintain the order and class of the original bench mark.

Note: Verify the survey mark in question has a published vertical order listing accurate to 1st or 2nd Order through the NGS Web site before resetting the mark. Resets of existing 3rd Order vertical control or resets of marks that have already been reset are not acceptable. If the mark has additional other control (e.g., horizontal, gravity, etc.), effort should be made to transfer the other data if possible. Contact a representative of NGS, as described above, for further help and direction in perpetuating this additional control.

There are two general situations that occur when a bench mark is to be destroyed: (1) there is time available to reset a new monument in the vicinity before the threatened mark is destroyed, and (2) the threatened mark will be destroyed before the new mark can be set. The latter case generally occurs when the location of the new (replacement) mark is not yet suitable or available for its physical establishment. This is often the case when the new mark will not be set until a new bridge or culvert head wall is constructed. Guidelines for both cases are presented in this paper.

[1] The term “bench mark” refers to a specific type of survey monument that is used to define the orthometric height of a location.

Setting a New Bench Mark

Use a new NGS bench mark disk, if available, or your agency bench mark disk, and provide appropriate stamping. The new disk will be stamped with the same designation as the soon-to-be or already destroyed bench mark. It will be stamped with the word RESET and the year of the reset; for example, a bench mark designated M 123 reset in the year 2006, would be stamped M 123 RESET 2006 (see Figure 1).

Select a suitable site for the new bench mark, if possible, within one setup from the bench mark to be replaced. Establish the bench mark, as indicated on page 2 and described in Attachment B of this document. Bench marks are generally set in a poured-in-place, concrete monument, in an existing stable concrete foundation (bridge abutment), in a drill hole in bedrock, or as a deep rod mark driven to refusal. NGS can provide guidance and information on other types of settings as well.

Level observations between the points must satisfy 3rd Order or better accuracy standards. Sight lengths must be limited to 70 meters, for the 3rd Order standard. Where possible, the replacement mark should therefore be set within about 140 meters of the old mark. The replacement mark must be set no farther than four setups apart, i.e., no more than 560 meters. Resets greater than four setups from the original mark will not be accepted unless they are observed following a minimum of 2nd Order, Class II procedures. Contact an NGS representative to discuss specific site conditions and possible options. Refer to the "FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems" for 3rd and higher order accuracy leveling requirements.

Figure 1. Sample disk stamping.

Note: It is not necessary to establish the new mark at the same elevation or exact same location as the old mark.

A witness post should be set within 2 meters of the relocated mark, if possible. (Occasionally the setting of a witness post can be skipped, especially if it will pose a hazard or draw unwanted attention, such as in urban areas.) Remove any witness posts for the destroyed bench mark. A complete description of the new mark must be provided on the "Report on Location and Description of Reset Bench Mark" form (downloadable from the NGS Internet site). A sketch of the location is beneficial for comparison with the written description. Clear digital photographs of the disk should be provided which confirm agency information, disk size and type, and designation stamping. Legible pencil rubbings of the disk are acceptable in the event a clear digital photograph is not possible. Written station description and digital photograph guidelines are available in Attachment C. A recovery note for the old mark should be entered via the NGS Mark Recovery Entry Form providing text describing the proposed destruction of the old mark or following directions to report the mark as destroyed.

Single Mark Level Tie (3rd Order)

An assumed elevation for the old mark can be used in the leveling since the principal concern is with the difference of elevation between the old mark and the new one. It should be noted; the elevation for the newly relocated bench mark will only be published to the nearest 0.01 meter, or 0.1 feet, because the absolute elevation of the bench mark to be destroyed cannot be verified without incorporating other bench marks into the survey, as a check. Many projects do not provide the resources required for multiple mark checks, but it is still imperative that the mark be reset to the best precision allowable.

Geodetic quality level instruments and rods should be used to transfer reset elevations to new bench marks. Refer to Annex F of the "Input Formats and Specifications of the National Geodetic Survey Data Base" for a listing of

equipment and their related codes. The instrument and rod combined resolution's least count should be 1.0 millimeters, or 0.005 feet, or better. Refer to the "FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems" for 3rd and higher order accuracy leveling procedures and equipment requirements.

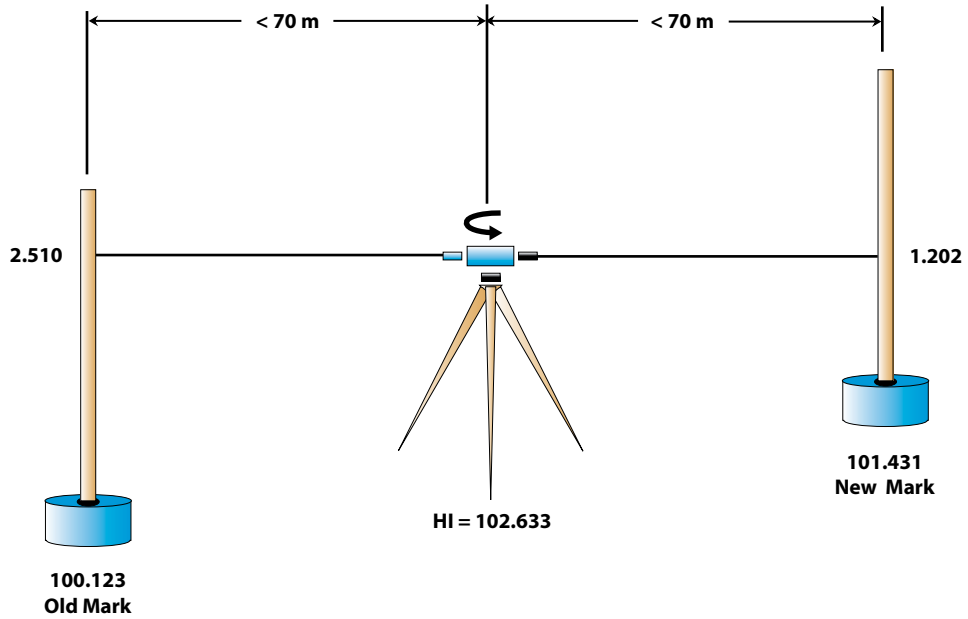
Record rod readings, at a minimum, to millimeters, or thousandths of feet. The model and type of instrument and rods used (e.g., fiberglass, aluminum, single piece, etc.), as well as rod scale units (e.g., meters, feet, or bar code) should be entered on the "Report on Location and Description of Reset Bench Mark" form (downloadable from the NGS internet site), where indicated.

Observing Sequence for Optical Leveling Equipment

1. Remove equipment from travel cases, attach level instrument to tripod, and let equipment acclimate to local conditions, usually about 10 to 15 minutes. Perform instrument collimation check (peg test) per manufacturer's instructions and record in field notes.

2. Firmly setup and plumb the instrument halfway between the old and new bench marks (see Figure 2). Limit sight lengths to no more than 70 meters (230 feet), from the instrument to either bench mark, or from the instrument to one bench mark and a turning pin, or when between two turning pins, in the case of multiple setup requirements, e.g., distance between bench marks is greater than 140 meters (459 feet), see Figure 3. Backsight distance to foresight distance imbalance must be less than 5 meters (16.4 feet). Accumulated backsight to foresight distance imbalance must be less than 10 meters (32.8 feet), in the case of multiple setups. Level instrument using tribrach foot screws following equipment leveling procedures.

Figure 2. Direct old mark to new mark level tie. Backsight-foresight distance imbalance must be less than 5 meters.



3. Plumb level rod on highest point of old mark, e.g., on the domed top of disk M 123. Record the designation and published elevation of the starting bench mark, noting vertical datum and units of measure (such information is available from the NGS Integrated Database, most frequently in a format called "datasheets." See the NGS Internet site for more information). Record the equipment information, such as model and serial numbers, observer and rodmen names, and starting time with appropriate date and time zone on the recording form.

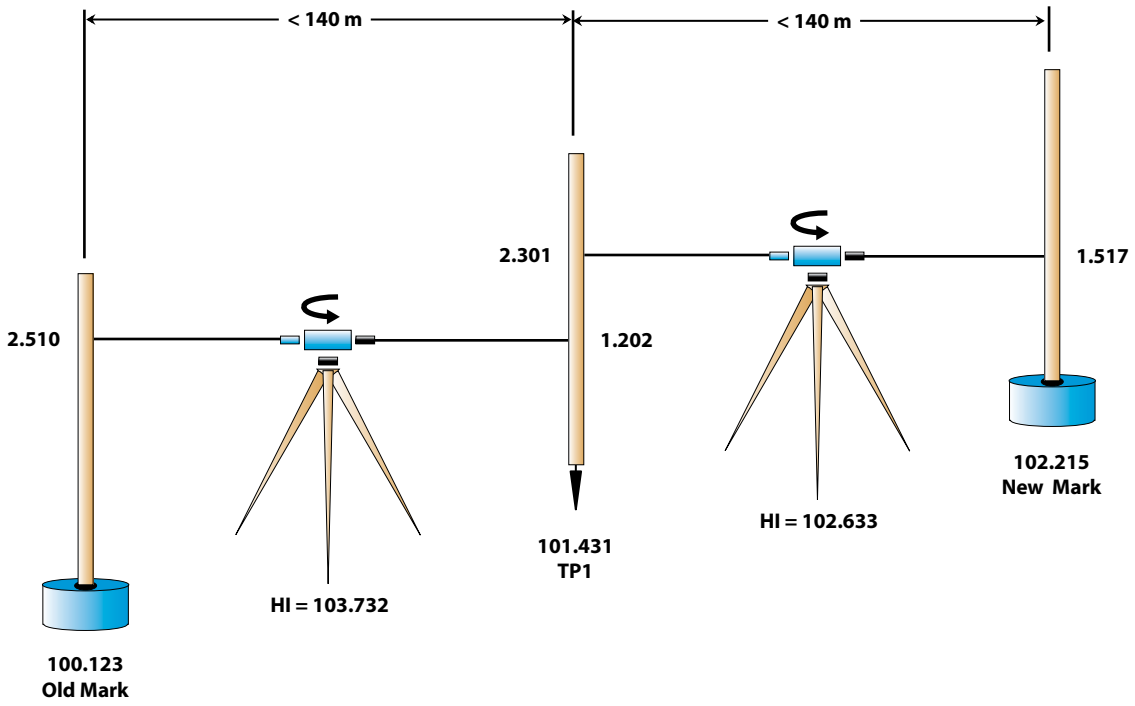
4. Backsight Reading: Observe intercept of middle reticule of the rod scale to get the backsight reading. Record rod reading to the best precision possible, as indicated above. Observe the stadia reading to determine distance from the point to the instrument and record distance on recording form. If the distance from the instrument to the back rod is greater than the allowable, reset the instrument within the allowable distance and reobserve and record the backsight reading and distance.

5. Compute height of instrument (HI), - the sum of the backsight and the published or starting elevation.

6. Plumb level rod on highest point of new bench mark. Record the designation of the new mark, e.g., M 123 RESET, or TP1 (for turning point 1, in the case of multiple setups).

7. Foresight Reading: Observe intercept of middle reticule of the rod scale to get the foresight reading. Observe the stadia reading to determine the distance from the instrument to the point and record on the form. Again, this distance must be within the allowable sight length distance, or a multiple setup leveling between the old and new points must be observed, as illustrated in Figure 3. Make sure backsight and foresight distance imbalance does not exceed the tolerances indicated in step 2 above. If the distance imbalance is greater than the allowable, move the instrument to a position that will be within this tolerance and reobserve both the backsight and foresight rod and stadia readings.

Figure 3. Old mark to new mark level tie for distances for 140 meters. Accumulated backsight - foresight setup imbalance must be less thatn 10 meters.



8. Compute the elevation of the new point, either the new bench mark or the turning point; this is the difference of the HI (computed in Step 5) minus the foresight.

If additional setups are needed, evenly split the difference between the last fore turning point – now new backsight - and the new bench mark, with the instrument, or advance no farther than 70 meters (230 feet) from the new back turning point (old fore turning point); then reset the instrument. Advance back rod same distance ahead of instrument, within 5 meters (16.4 feet), to new fore turning point, or to the new bench mark. Repeat steps 2 through 8, until you have reached the new bench mark. Ensure the accumulated backsight to foresight distance imbalance is less than 10 meters (32.8 feet). This is accomplished by selecting the instrument's location in relationship to the rods' so the accumulated distance imbalance is minimized through compensating longer or shorter foresight lengths.

Always plan the observations between the old and new points so that the same rod is set on the starting and ending bench mark. In the case of using two rods, for leveling in a multiple setup leveling scenario, always start and end with the same rod on the bench mark, i.e., produces an even number of setups. This ensures systematic error, with regards to the level rods, cancels during the leveling observations.

9. When the last setup has been observed, record the ending time, and weather conditions, e.g., temperature observed at instrument height with units, wind effects, and sun conditions during the level observations, on the recording form.

10. All observations between the old and new points must be confirmed by performing double-run leveling, forwards and backwards, which will provide elevation differences opposite in numerical sign. Leveling from the old point to the new point provides the forward leveling and leveling from the new point to the old point provides the backward leveling. For return observations, reset and re-level the instrument, even when only one turn is required. Level backward from new point to the old, in the same manner as steps 2 through 8.

Note: The observed elevation difference for the forward and backward leveling, between the old and new points, for 3rd Order leveling, may differ by no more than 2.0 millimeters for a one-setup section, 3.79 millimeters for multiple setup sections less than 0.10 kilometers in length, or 12 millimeters × √D, where D is the shortest one-way length of section in kilometers, for sections greater than 0.10 kilometers.

Agreement of Observed Elevation Differences, Observed Backward and Forward During:				
Condition	1st Order, Class II	2nd Order, Class I	2nd Order, Class II	3rd Order
One-setup section	+/- 0.50 mm	+/- 1.00 mm	+/- 1.50 mm	+/- 2.00 mm
2-runnings of section < 0.10 km in length	+/- 1.26 mm	+/- 1.90 mm	+/- 2.53 mm	+/- 3.79 mm
2-runnings of section of one-way length D: T*√D mm, T =	+/- 4.00	+/- 6.00	+/- 8.00	+/- 12.00

Table 1. Tolerances for Geodetic Leveling

11. To compute the elevation difference from the old mark to the new, average the two elevation differences between the old mark and the new mark maintaining the sign, positive or negative, of the leveling from the old to the new mark, i.e., forward leveling. The field elevation for the new bench mark will be the average computed difference (the mean of both the forward and backward leveling) plus the published elevation of the old bench mark.

Note: The old mark should not be disturbed until observations involved in the leveling have been checked by the observer or recorder to ensure required procedures and closures have been met.

Observing Sequence for Digital Leveling Equipment

These observing procedures are intended for use with digital levels only.

1. Remove equipment from travel cases, attach level instrument to tripod, and let equipment acclimate to local conditions, usually about 10 to 15 minutes. Perform an instrument collimation check (two-peg test) to determine instrument collimation error. The determined value should meet specifications and set to be applied to all future field observations, as outlined in the digital level user's manual.

2. Firmly set up and plumb the instrument about halfway between old and new bench marks. Limit sight lengths to no more than 70 meters (230 feet), from the instrument to either bench mark, or from the instrument to one bench mark and a turning pin, or when between two turning pins, in the case of multiple setup requirements, e.g., distance between bench marks is greater than 140 meters (459 feet). Backsight distance to foresight distance imbalance must be less than 5 meters (16.4 feet). Accumulated backsight to foresight distance imbalance must be less than 10 meters (32.8 feet) in the case of multiple setups.

Level instrument using tribrach foot screws to center bull's-eye bubble. Turn on instrument and select backsight/foresight level program. Set and confirm instrument parameters, e.g., averaging three measurements; display maximum decimal places; record readings; and other observing configuration information, such as rod type, and metric units. The starting elevation for the old point should be set to 0.0000 (zero), as the difference in elevation between the new and old points is being determined in the field.

3. Plumb level rod on highest point of old mark, e.g., on the domed top of disk M 123. Record the designation and published elevation of the starting bench mark, noting vertical datum and units of measure (such information is available from the NGS Integrated Database, most frequently in a format called "datasheets". See the NGS Internet site for more information). Record equipment information, such as model and serial numbers, determined instrument collimation, observer and rodmen names, and starting time with appropriate date and time zone on the recording form.

4. Backsight Reading: Sight through instrument and align vertical crosshair in middle of bar-code for rod on the old mark. Use focusing knob to bring the bar-code image into sharp focus. Depress measure button and record rod reading. Note distance from rod to instrument. It should be less than 70 meters (230 feet). If the distance from the instrument to the back rod is greater than the allowable, reset the instrument within the allowable distance and reobserve and record the backsight reading and distance.

5. Plumb rod on highest point of new bench mark. Record designation of new mark, e.g., M 123 RESET, or TP1 (for turning point 1, in the case of multiple setups).

6. Foresight Reading: Point and focus the level instrument on the rod over the new mark. Depress measure button and record rod reading. Note distance from rod to instrument; it should be less than 70 meters (230 feet). Again, this distance must be within the allowable sight length distance, or a multiple setup leveling between the old and new points must be observed, as illustrated in Figure 3. Note imbalance between backsight and foresight distances; the difference should be less than 5 meters (16.4 feet). If the distance imbalance is greater than the allowable, move the instrument to a position that will be within this tolerance and reobserve both the backsight and foresight rod and stadia readings.

7. The difference in elevation between the old bench mark and the new bench mark, or turning point, in the case of multiple setups, is computed as the sum of the backsight reading minus the foresight reading.

If additional setups are needed, evenly split the difference between the last fore turning point— now new backsight —and the new bench mark, with the instrument, or advance no farther than 70 meters (230 feet) from the fore turning point; then reset the instrument. Advance back rod same distance ahead of instrument, within 5 meters (16.4 feet), to new fore turning point, or to the new bench mark. Ensure accumulated backsight to foresight distance imbalance is less than 10 meters (32.8 feet). Repeat steps 2 through 7, until you have reached the new bench mark. When the last setup has been observed, record the ending time, and weather conditions, e.g., temperature observed at instrument height with units, wind effects, and sun conditions during the level observations, on the recording form.

Always plan the observations between the old and new points so that the same rod is set on the starting and ending bench mark. In the case of using two rods, for leveling in a multiple setup leveling scenario, always start and end with the same rod on the bench mark, i.e., an even number of setups. This ensures any systematic error, with regards to the level rods, is canceled during the leveling observations.

8. All observations between the old and new points must be confirmed by performing double-run leveling, i.e., leveling from the old point to the new point as forward leveling and from the new point to the old point as backward leveling. For return observations, reset and re-level the instrument, even when only one turn is required. Level backward from new point to the old; in the same manner as in steps 2 through 7. The starting elevation at the new point for the backward leveling should be set to 0.0000 (zero), as the difference in elevation between the new and old points is being determined in the field.

Note: The observed elevation difference for the forward and backward leveling, between the old and new points, for 3rd Order leveling, may differ by no more than 2.0 millimeters for a one-setup section, 3.79 millimeters for multiple setup sections less than 0.10 kilometers in length, or 12 millimeters $\times \sqrt{D}$, where D is the shortest one-way length of section in kilometers, for sections greater than 0.10 kilometers.

9. To compute the elevation difference from the old mark to the new, average the two elevation differences between the old mark and the new mark maintaining the sign, positive or negative, of the forward leveling from the old to the new mark. The field elevation for the new bench mark will be the average computed difference (the mean of both the forward and backward leveling) plus the published elevation of the old bench mark.

Note: The old mark should not be disturbed until observations involved in the leveling have been checked by the observer or recorder to ensure required procedures and closures have been met.

When Reference Points Are Required

If an old mark has to be removed before a new mark can be established, a series of three reference points should be set in the vicinity. Set stable points, which are unlikely to move or be damaged from the time they are set, to the time they are used to establish the elevation of the new mark. Examples of "stable" reference points are a chiseled cross in concrete or an outcrop, an anchor bolt set into concrete, a nail driven in a tree root, a stable re-bar driven in a location that will survive construction, as well as others.

Leveling should be performed so there is a separate setup between each reference point and the bench mark(s), following similar procedures (as listed in steps 2 to 9 above). A suggested sequence is as follows: observe forward and backward leveling between the old bench mark to be reset and reference point 1; observe forward and backward leveling between the old bench mark to be reset and reference point 2; and observe forward and backward leveling between the old bench mark to be reset and reference point 3, as illustrated in Figure 4. The loop should be closed by observing forward and backward leveling between reference points 1 and 2, and between reference points 2 and 3, to provide an additional check on the reference points.

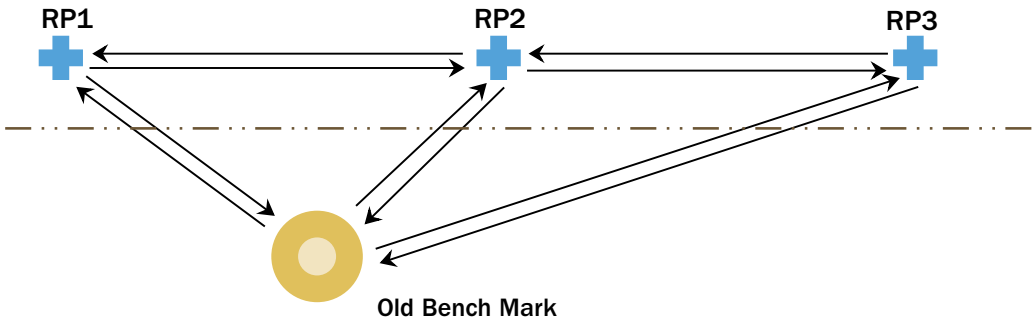


Figure 4. Old bench mark ties to three reference points.

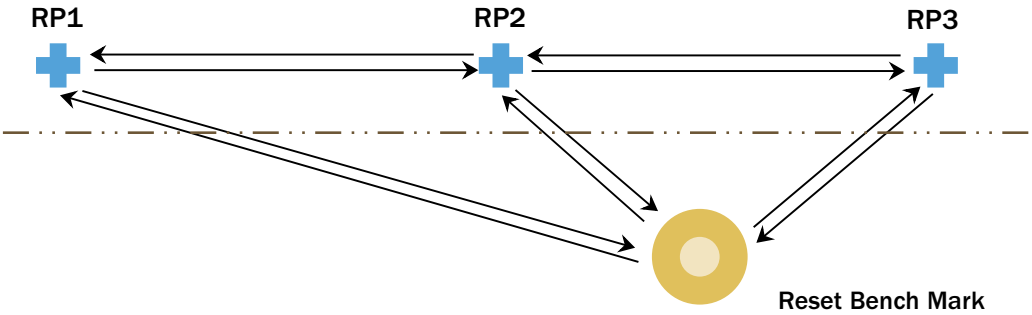


Figure 5. Three reference points tie to new reset bench mark.

A similar set of observations is obtained between each of the reference points and the new bench mark, after it has been established, as illustrated in Figure 5.

Elevation differences between reference points that differ from the original elevation differences, beyond allowable section closure tolerances, must be investigated and noted. If the old bench mark is still in existence, a direct level tie between the old and new marks can be achieved by following the previous observing sequences for optical or digital leveling equipment. If the old mark has been disturbed or destroyed, loop closure analysis should indicate which of the reference points is in question. Re-run the leveling to ensure correct high points were held and procedures were followed. Note and describe any stability issues relevant to the reference point of concern. Submit all data with a discussion of conditions which may have caused the difference in elevation for review and final determination on the acceptability of the data by NGS. It may be necessary to perform a level tie to an adjacent existing bench mark, following a minimum of 2nd Order, Class II procedures, to establish an elevation for this new bench mark in these conditions.

Destroyed Bench Marks

After the new mark has been established and leveled, and it is conclusive the old monument will be destroyed, the old disk should be removed and returned to NGS, at the address listed below for Data Submission. If the old disk cannot be returned, please describe the reason. A copy of field notes, a description of the original mark, a description of the reset mark, completed reset forms, and any remarks that seem pertinent to this action, should also be submitted.

Destroyed bench mark disks should be returned to NGS, along with the reset information requested below. NGS does not identify bench marks as destroyed in its records without definitive proof of the mark's destruction. Refer to the Mark Recovery Entry Form on the NGS Internet site for further details about submitting information about destroyed geodetic control points.

Note: If the old bench mark is in poor condition, such that the elevation may be questionable, it should be considered destroyed. No effort should be made to transfer a potentially erroneous elevation to a new replacement bench mark from a questionable bench mark in poor condition. Poor condition can be described as a leaning, loose in the ground, or deteriorated monument. Attachment A describes the procedures for establishing a new vertical control point, not a reset, in the area of a bench mark found in poor condition by performing level ties to other adjacent bench marks.

Data Review and Final Adjusted Elevations

NGS will review submitted data for conformation to guidelines, quality, and completeness. NGS will then adjust observed elevation differences and provide the final adjusted elevation and description for the new reset mark published in NGS elevation records, and made available through its database. Information about NGS, its products and services, as well as station data sheet information can be found on the NGS Internet site.

Data Submission

Before NGS will publish new reset elevations, the following must be supplied:

1. Completed "Report on Location and Description of Reset Bench Mark" form (available at the NGS Internet site as either a fillable PDF or through a direct online submission tool) plus digital photographs and any digital (scanned) version of a site sketch, if one was made.

2. Completed "Observations for Relocation of Bench Mark" form for observations between reset mark and existing mark(s), or reference points used to reset the mark (available at the NGS Internet site as either a fillable PDF or through a direct online submission tool)

2a. If a digital level was used, also submit a digital copy of the leveling observations

The above forms should be filled out digitally and emailed (with the digital leveling file, digital photographs and scans of site sketches) to: ngs.mark.resets@noaa.gov

3. The old disk and/or entry into the Mark Recovery Entry Form on the NGS Internet site.

Send removed disk, if possible, to the National Geodetic Survey:

Bench Mark Resets

NOAA, National Geodetic Survey, N/NGS42

Bldg. SSMC3, Room 8438

1315 East-West Highway

Silver Spring, MD 20912

Phone: 301-713-3187

Bibliography

FGCS "Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems," Version 4.1, May 27, 2004.

FGDC "Geospatial Positioning Accuracy Standards [Parts 1, 2, 3]," October 21, 2005

FGDC "Input Format and Specifications of the National Geodetic Survey data Base, Volume I Horizontal Control Data," March, 2003

FGDC "Input Format and Specifications of the National Geodetic Survey Data Base, Volume II Vertical Control Data)," November, 1998.

Floyd, Lt. Richard P, "Geodetic Bench Marks," NOAA Manual NOS NGS 1, September 1978.

NOAA/NGS "Scope of Work for Height Modernization and LIDAR Surveys, Attachment I, Requirements for Digital Photographs of Survey Control," Version 12, July 15, 2003

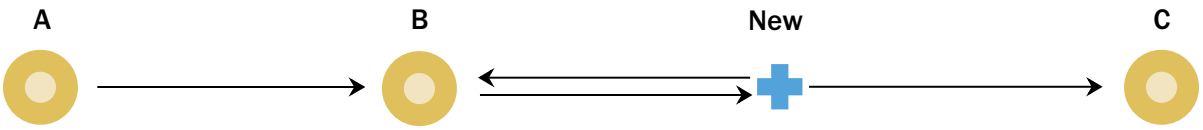
Schomaker, M. Christine and Ralph Moore Berry, "Geodetic Leveling," NOAA Manual NOS NGS 3, August 1981.

Attachment A. Guidelines and Procedures to Replace a Destroyed Bench Mark along an Existing Level Line, and Maintain Original Order of Accuracy

The guidelines and procedures given below were written to provide guidance on establishing, to the same order/class, one or two bench marks along a previously leveled line of bench marks, from the remaining bench marks along that line. If a large number of bench marks in a row, along a line, are destroyed, it is required that a minimum of two or three existing bench marks, depending on the intended order and class, on each side of the destroyed bench marks be tied. Alternatively, the entire line may be re-leveled.

Following these guidelines and procedures will result in the height of the new bench mark published, to millimeters, and the accuracy will be published to the same order/class as the original line. The results will NOT be published as a 3rd Order "reset" bench mark.

Network Geometry for Replacing One or Two 1st Order Bench Marks



1st Order (preferred method): (A, B, and C are existing 1st Order bench marks)

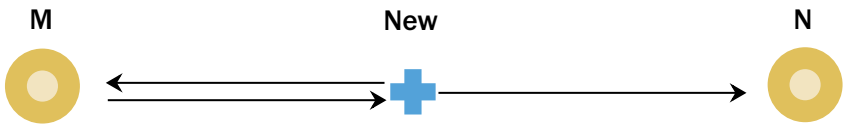
A to B = single-run, must check* published difference
B to NEW = double-run, forward and backward leveling must check*
NEW to C = single-run
B to C = not directly leveled, but must check* published difference

1st Order (optional method): (D, E, and F are existing 1st Order bench marks)

D to E = single-run, must check* published difference
E to F = single-run, must check* published difference
F to NEW = double-run, forward and backward leveling must check*

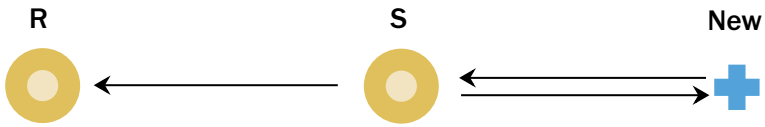
Note: "Check" refers to "Maximum section misclosure (millimeters)" of $4\times\sqrt{D}$, as defined for 1st Order, Class II levels; where D is shortest length of section (one-way) in kilometers, in the publication "FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems."

Network Geometry for Replacing One or Two 2nd Order Bench Marks



2nd Order (preferred method): (M and N are existing 2nd Order bench marks)

M to NEW = double-run, forward and backward leveling must check*
NEW to N = single-run
M to N = not directly leveled, but must check* published difference



2nd Order (optional method): R and S are existing 2nd Order bench marks)

R to S = single-run, must check* published difference
S to NEW = double-run, forward and backward leveling must check*

Note: "Check" refers to "Maximum section misclosure (millimeters)" of $6\times\sqrt{D}$, as defined for 2nd Order, Class I levels and $8\times\sqrt{D}$, as defined for 2nd Order, Class II levels; where D is shortest length of section (one-way) in km, in the publication FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems.

ADDITIONAL REQUIREMENTS WHEN SUBMITTING DATA TO NGS

1. The observations and a description for the new bench mark and recovery notes for the existing bench marks must be submitted in Blue Book format as described in FGDC Input Format and Specifications of the National Geodetic Survey Data Base, Volume II Vertical Control Data . Software programs available from the NGS Internet site, Translev (observations) and Windesc (descriptions and recovery notes), can be used to create the data in Blue Book format.

2. The monumentation should be the same quality and type as the monumentation used on the original level line; however, the new bench mark location should be same vertical stability or better as the previous one as described in Geodetic Bench Marks, NOAA Manual NOS NGS 1.

3. The leveling equipment and procedures used must meet the FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems for the order/class of leveling being performed.

Attachment B. New or Replacement Survey Monuments

Typical bench mark or geodetic control disks are made of aluminum, brass, or bronze. They are about 9 centimeters (3.5 inches) in diameter, and have a domed surface to support the foot of a leveling rod, and a center point for plumbing survey equipment. Information is imprinted on its surface to identify the monument, and aid the user in obtaining data about it. This pre-cast logo is recessed, so that it does not interfere with the leveling rod, or other survey equipment. A deformed shank or stem, about 7.0 centimeters (2.5 inches) long, is cast with, or otherwise attached to the bottom surface of the disk, to help prevent the disk from being rotated or dislodged.

SITE SELECTION

Even though the reset bench mark must remain within the general proximity of the original monument, considerations for selecting an appropriate site for the replacement monument must be addressed. Select a secure location that might provide natural protection, such as one well away from a highway surface, near the edge of the right-of-way. Provide for monument stability, both vertically and horizontally, by selecting a location that reduces the influence from ground and soil movement. Avoid settings in low, potentially wet areas, slopes, and all earth-fill situations. Crests of hills are generally good locations for bench marks, as they reduce influence of frost heave; and the consistency of soil tends to be firmer. Ensure usefulness by selecting a location that is readily accessible, and safe for users. Select a site with good, unobstructed horizons so the bench mark can be used with satellite-based positioning systems if possible. Always obtain the site owner's permission prior to any work on the site.

Figure B - 1. Brass disk, front and side view.

Caution: Always confirm status of buried utilities prior to digging monument holes, by contacting local utility companies or a buried utility location service.

CONCRETE MONUMENT

1. Monument Design. A concrete monument should be poured-in-place in a hole, dug in the ground; cylindrical or squared in appearance; and slightly "bell-shaped," or wider at the bottom. The monument must extend well below the frost line; typically 1.3 meters (4 feet) deep and 0.3 meters (1 foot) in diameter. Local ground conditions, such as hard soil types with subsurface rock, may prohibit desired monument depth; whereas, softer, sandy soil types may require slightly deeper monuments to assure stability. Avoid setting concrete monuments in areas affected by sliding or other potential movement, such as in slopes and all earth-fill situations.

2. Station Designation. Stamp the station designation and setting year on the top surface of the disk prior to setting.

3. Digging the Hole. The hole is generally dug with an auger or post-hole digger (bell-shaped, or wider at the bottom), then backfilled with concrete mix. The bottom of the hole is enlarged about 0.1 meters (0.4 feet) in radius, tapering upward for 0.4 meters (1.4 feet), in order to make the bottom of the monument bell-shaped (to help keep the monument stable). Care should be taken to avoid creating any shoulders or mushrooming effect near the top of the monument, which might afford opportunity for frost heave or surface soil action to move the monument. A cylindrical form, such as rolled black tar paper (felt paper) or a cardboard form, placed at the top of the hole and extending about 0.4 meters (1.4 feet) deep will create a round shape and help support the upper portion of the concrete monument until the cement cures. A smooth surface near the top of the monument is less susceptible to damage by frost or other forces, than unfinished tops.

4. Concrete Ingredients. The quality of the ingredients and their proportions help determine how dense and impervious the cured concrete will be. The ingredients include aggre-

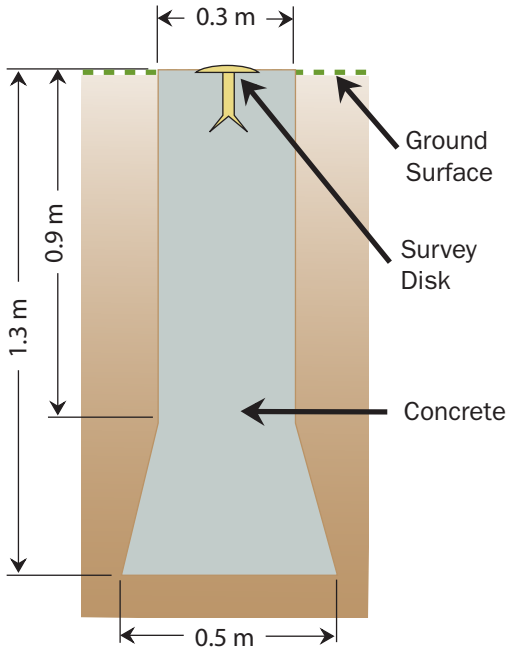


Figure B - 2. Schematic of concrete monument.

gate, cement, and water. Aggregate should be clean (free from silt and clay, harmful chemicals, and organic matter) and well graded, i.e., contain proportionate amounts of many particle sizes. In specifying mix proportions, the aggregate is usually divided into two parts: sand (particle size less than 4 millimeters) and gravel (particle size greater than 4 millimeters). Both parts should be well graded. Aggregates that are porous, split easily, or are otherwise weak or permeable, result in poor concrete. Examples of poor aggregate include shale, claystone, sandstone, and micaceous rocks.

Varying sized bags of pre-mix concrete are readily available, and work well for setting concrete monuments. When using pre-mix concrete, ensure that the aggregate is well graded. Additional Portland cement and/or sand, typically a half shovelful per 60-pound bag, can be added to improve consistency and quality of the finished monument. A typical concrete monument setting requires 8 to 10, 60-pound bags of concrete mix, depending on the size of the hole.

The water used in concrete mix should be relatively free of impurities; such as acids, alkalis, salts, oil, organic matter, and silt. Impurities can decrease the strength and durability of cured concrete. As a rule, do not use water that you would not drink.

5. Mixing and Placing. Suitable proportions (by bulk volume) of cement, to sand, to gravel are 1:2:3. If the gravel is made up of fragmented or angular particles, use a little less gravel and, proportionately, more sand. Add only enough water to make the mix workable. About half the water added to the mix is used in the chemical reaction (hydration) that causes the paste to harden into binder. If too little water is used, however, the mix will not compact properly and spaces will be left in the mass. A good indication of the right amount of water is that the mix neither runs nor falls off the shovel, but sluggishly slides off and flattens upon hitting the ground.

Fresh concrete must be well mixed before placed, otherwise the minute particles of cement will not be sufficiently wet, and the aggregate will not be completely coated with paste. Before placement, the hole should be damp, so the moisture will not be drawn from the fresh concrete into the surrounding soil. In no case should it be so wet as to be muddy. Segregation of the various sizes of aggregate should not be much of a problem when pouring concrete survey monuments. However, be aware that segregation can occur, and is undesirable when it does. Continuously tamp the mix into a compact mass, while filling the hole, so it becomes less pervious and, consequently, more durable. Some bleeding (water gain at the surface) is to be expected when finishing the mark. Excessive bleeding indicates too much water in the mix or poor gradation of aggregate.

Note: Pour the entire concrete monument in a single setting to ensure a solid stable monument. Allowing a pour surface to partially dry, or cure, between consecutive pours creates a weakness in the concrete.

6. Finishing Monument and Setting the Disk. After pouring concrete and tamping to settle and remove voids, the top of the monument is smoothed off and slightly beveled with a trowel. The top of the finished monument should be flush with the ground, or slightly recessed for protection from

mowers, etc. Wet and clean the disk by rubbing all surfaces with cement, to remove unwanted dirt and oils; rinse well. Fill underside of disk with cement, using a trowel. Hold disk loosely upside-down by end of the shank then gently tap domed surface of disk from below, with the handle of the trowel, several times, to allow cement to settle and trapped air to escape. This process is very important, because it will minimize the existence of highly undesirable voids under the disk once in place. Carefully turn the disk over so as not to dislodge the under-disk cement and press the disk stem into the top center of the monument until the rim of the disk touches the concrete. The disk is typically oriented to read with the observer facing north. This is useful for GPS and gravity observations, which orient to north. Lightly press and tap the disk into the top of the concrete monument until the concrete slightly overlaps the edges of the disk which helps protect the disk. Once the disk is in place, finish the top of the monument by smoothing with the trowel.

7. Clean Up. Excess concrete is cleaned from the surface of the disk after installing. Excess dirt and trash are removed, and the site is returned to its "as-found" condition. The bench mark is the only evidence left to represent the quality of work performed, and therefore the cleanliness of the site should reflect similar quality.

Caution: Lime and/or cement in concrete can cause burns on skin and destroy clothing. Water used to rinse tools, concrete/ cement mixing containers, etc., can kill vegetation if dumped on the ground.

8. Curing Concrete. Concrete should be covered for several days after it is placed. This prevents rain from making the mix too wet, and ruining the finished surface. It also prevents the surface from drying too rapidly, leaving too little water for complete hydration, as well as concealing the disk from people who might tamper with it at this vulnerable stage. A piece of wood, cardboard, heavy paper, or similar item should suffice for covering the mark, and should be removed after cement has cured.

9. Cold Weather Precautions. Frozen fresh concrete has a damaging effect, because expansion of water as it freezes separates solid particles in the mix. This reduces the strength of the bond and makes the concrete more porous and less durable. Three protective measures should be taken in cold weather; either singly or in combination. First, use warm ingredients; the first 24 hours after a mix has been placed, it develops little heat of its own to prevent freezing. After 24 hours some heat is developed, as a product of the chemical reactions occurring in the mix. The use of warm ingredients is especially beneficial during the first 24 hours. To keep the aggregate and cement warm, store them indoors and keep them in a heated vehicle until they are mixed.

Second, use Type III (high-early-strength) cement or special additives, such as calcium chloride, which speeds curing. The calcium chloride should be dissolved in the mixing water, instead of mixing it with other ingredients. If a large number of concrete marks are being installed, by mass production, using a "ready-mix" contractor, fast-curing additives should not be added until the concrete is delivered on site.

Third, insulate the finished mark for a week after the concrete is poured. One method is to cover the mark with boards, resting on supports. Cover with paper or plastic, then add a layer of straw, Styrofoam, or similar insulating material, about 0.15 meters (0.5 feet) thick, and finally a layer of soil 0.15- to 0.3 meters (0.5- to 1.0 feet) thick. Pile snow loosely on top, if available.

SURVEY DISK SET IN BEDROCK OR STRUCTURE

Sound bedrock is the most desirable setting for vertical control points. Besides the ease and cost effectiveness with which a disk can be installed, bedrock provides the most stable setting in terms of both crustal motion and disturbances inflicted by people. Always use bedrock when a suitable outcrop exists. As a rule of thumb, bedrock is considered potentially good, if the distance between natural joints and fissures is greater than 1 meter (3.0 feet).

1. Station Designation. Stamp the station designation and setting year on the top surface of the disk, prior to setting.

2. Site Selection. Pick a fairly level and accessible spot on the outcrop, that appears intact with the bulk of the rock. A simple test can be performed to help determine the condition and integrity of the rock by placing one's hand near the area the disk will be set, then striking the outcrop with a moderately heavy hammer, and feeling for vibration. Sound

outcrop will force the hammer to rebound with each impact and vibration through the rock should be minimal. Avoid rock that sounds hollow from this test.

3. Drilling the Hole. Drill a 2.5 centimeters (1 inch) diameter hole, about 8 centimeters (3 inches) deep into the bedrock. Chisel a flat, level recessed area around the top of the hole, to a diameter slightly larger than the disk. Test the hole with the disk to see if it is deep enough, and the disk sits flush in the chiseled area.

When installation is completed, the top surface of the disk should sit level and slightly below the surface of surrounding rock, to help protect the disk. Chisel a drain channel through the low edge of the chiseled recess, to allow water to drain away from finished mark.

Caution: Protective eye-wear should be worn when drilling into bedrock or masonry.

4. Mixing Cement. Remove all rock powder and debris from the hole and recessed area. Flush and fill the hole with clean water; then pour dry cement into it. Mix ingredients right in the hole with a thin stick or other implement such as a screw-driver. Add water and cement to make enough mortar/cement to fill hole, with a little extra available to place on the underside of the disk. When the mortar is completely mixed, it should be thick, but still workable, like heavy mashed potatoes.

5. Preparing the Disk. Wet and clean the disk by rubbing all surfaces with cement, to remove unwanted dirt and oils; rinse well. Fill underside of disk with mortar, using a trowel. Hold disk loosely upside-down by end of the shank then gently tap domed surface of disk from below, with the handle of the trowel, several times, to allow mortar to settle and trapped air to escape. This process is very important, because it will minimize the existence of highly undesirable voids under the disk once in place.

6. Setting the Disk. Place the shank of the disk into the cement-filled hole and press the mark firmly into place. The disk is typically oriented to read with the observer facing north. This is useful for GPS and gravity observations, which orient to north. Slightly twist the disk back-and-forth and gently tap it with the end of the trowel handle, to help settle the disk, completely and evenly, into the recess in the bedrock. The disk is considered set when the slight back-and-forth movement stops and the disk settles firmly in place. Work excess mortar around the outer edge of the disk, making sure that it is smooth, and slightly overlaps the top, edges of the disk. An exposed disk edge could provide

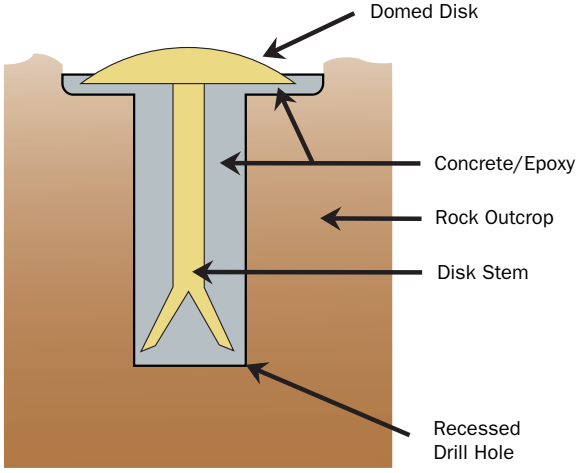


Figure B - 3. Side view of disk in outcrop.

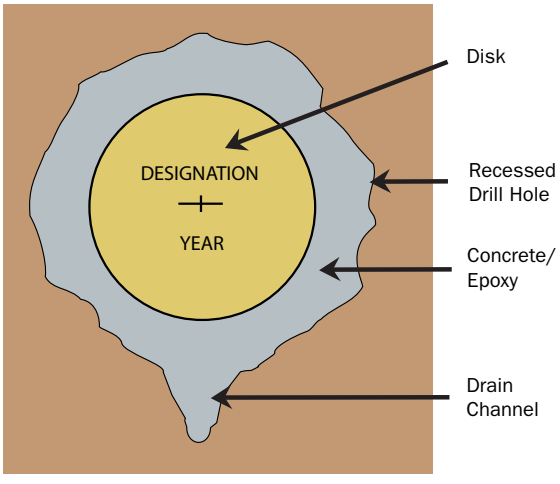


Figure B - 4. Top view of disk in outcrop.

a weak spot that can be used by someone, or the elements, to dislodge the mark.

7. Cleaning and Finishing. Sprinkle a little dry cement on the exposed surface of the disk, and then rub it with a clean rag or short bristled brush, using circular strokes. This cleans the disk and removes excess mortar from its surface and recessed letters. Rubbing the wet mortar around the edge of the disk in the same manner is done intentionally to finish its surface and help prevent cracking. Brush away loose cement and make sure the finished product has a neat appearance.

8. Curing Cement. Cover the newly set disk while the cement is still wet, to prevent heavy rains or other debris from ruining its surface; and to conceal the disk from people who might tamper with it at this vulnerable stage. A piece of wood, cardboard, heavy paper, or similar item should suffice for covering the mark, and should be removed after cement has cured.

9. Clean Up. The area is cleaned; excess dirt and trash removed; and returned to its "as-found" condition. The bench mark is the only evidence left to represent the quality of work performed, and therefore the cleanliness of the site should reflect similar quality.

Caution: Lime and/or cement in concrete can cause burns on skin and destroy clothing. Water used to rinse tools, concrete/cement mixing containers, etc., can kill vegetation, if dumped on the ground.

SURVEY DISK IN STRUCTURE

The procedure for setting a disk in a concrete or masonry structure is identical to that for setting one in bedrock.

Caution: Use protective eye-wear when drilling into masonry or concrete.

Stability and safety issues are also concerns when setting a disk in small structures such as bridges. Select locations with continuous, deep foundations such as head walls, and avoid locations such as curbs, sidewalks, bridge decks, and railings.

When drilling into brick or other soft material, an electric drill or hammer and star drill should be used, rather than heavy power equipment, to prevent potential damage to the exterior. Recess the chiseled depression for the disk so the top of the disk, when set, is flush with surrounding structure. This will eliminate the need for a chiseled drain, as described for the disk in outcrop.

The hole should be flushed with water, and wet before mortar is put into it to remove dusty surfaces and aid bonding. After placing the shank of the disk into the mortar filled hole, work it to the bottom edge of the hole, as described in Step 6, so that it will not settle askew while the mortar is curing.

Highway grade epoxy may be used in place of cement, if it meets ultraviolet standards and will hold up to "all" weather conditions. Setting procedures with epoxy are similar to those described previously, except the drilled hole, though needing to be extremely clean, cannot be wet.

NGS 3-D DEEP DRIVEN ROD MARK

The recommended survey marker that produces stability for most conditions is the three-dimensional (3-D) drivable survey monument. The principal component of this monument is a 17 millimeter (9/16 inch) diameter, stainless steel rod driven into the ground, using a gasoline powered reciprocating hammer, until refusal or a reduced driving rate has been achieved. The rounded top center of the rod is the survey datum point. The upper 1.0 meter (3 feet) of the rod is encased in a 2.5 centimeter (1 inch) grease filled PVC or plastic extruded fin sleeve that is held horizontally stable by the surrounding, back-filled, washed sand. Effects of up and down ground movement during freeze/thaw or wet/dry conditions are buffered from the anchored rod by the grease filled sleeve promoting vertical stability. A 12.7 or 15.2 centimeter (5 or 6 inch) PVC pipe with attached standard aluminum hinged logo cap protects and identifies the top of the monument.

Time required setting an average 3-D rod mark using the following procedures and referencing Figure B-4 is 2 to 3 hours. Photo documentation of setting a 3-D rod mark can be found on the NGS Internet site.

A. EQUIPMENT REQUIRED TO SET MONUMENTS:

ROD DRIVERS AND ACCESSORIES

Qty	Description	Notes
1	Pneumatic Rod Driver	Use these, or something similar: a) Whacker Model BHB 25 (with tool kit) b) Pionjar Model 120 (with tool kit) c) Cobra Combi (with tool kit)
1	Rod Driving Insert	Holds machine on rod and acts as impact point while driving rods
1	Shovel Bit (optional)	For machine to help start and dig holes
1 Pint	Required Oil Type and Calibrated Container	For determining gas/oil mix
2	Gasoline Containers with Gasoline	For fueling the rod driving machine and generator

DIGGING THE HOLE

Qty	Description	Notes
1	Post Hole Digger	Capable of digging a hole 4-feet deep
1	Gas Powered Post Hole Digger with Augers (optional)	For increased productivity
1	Digging Bar	For dislodging rocks and hard packed soil

DRIVING THE ROD

Qty	Description	Notes
1	2 lb. Hammer	To start rods and stamp designations
2	Wrenches/Grips	For attaching rods together. Use either of these: a) 8” to 10” Quality Pipe Wrenches b) Quality Vise Grips

FINISHING THE ROD

Qty	Description	Notes
1	Hack Saw + Extra Blades	For cutting stainless steel rod
1	4” or 5” Grinder	Use electric or battery powered. For cutting and finishing off top of rod.
1	Gas Powered Electric Generator	For powering grinder and drill
2	Sanding Disks (medium grade), Metal Cutting Disks	For use with the grinder
1	Steel File	For fine finishing off the rod
1	Centering Sleeve	To aid in center punching mark on rod top
1	Center Punch	To punch mark on rod top
Var	Sandpaper or Sanding Pad	For fine finishing rod top

FINISHING THE MONUMENT

Qty	Description	Notes
1	¼" Stamping Set	For lettering and numbering station designation/date
1	Hand Saw	For cutting 5 or 6-inch PVC pipe
1	Bucket or Wheelbarrow	For mixing cement and moving unwanted dirt
2	5 Gallon Water Containers and Water	For mixing cement and cleaning equipment
1	Hoe or Sharp Shooter Shovel	For mixing cement
1	Heavy Rubber Mallet	To aid lowering logo cap and PVC pipe into cement
1	Cement Finishing Trowel	For smoothing concrete top
1	Stiff Vegetable Type Brush	For cleaning logo cap and hinges

ASSORTED ACCESSORIES

Qty	Description	Notes
1	Tool Box with standard tools	For incidental repairs. Should include, at the least: Slotted and Phillips Head Screw-Drivers, Pliers, Needle Nose Pliers, Wire Cutters, Assorted Wrenches, Sockets, Allen Wrenches, Wire Brush
1	Round Nose Shovel	For helping dig hole
1	Tile Spade	For digging hole and mixing cement. Also known as a "Sharp Shooter Shovel"
1 Roll	Black Tar Paper (Felt Paper)	For making cylindrical form for top of monument
1	30 Meter Tape Measure	For various measurements
1 Pair	Leather or Cotton Work Gloves	For hand protection especially while working with cement
1 Pair	Protective Eyewear	For eye protection especially during operation of machinery
1 Pair	Hearing Protection Devices,	For hearing protection especially during operation of machinery Ear Plugs or Ear Muffs
Var	Rags / Paper Towels	For general cleanup

B. MATERIALS REQUIRED TO CONSTRUCT EACH MARK:

Qty	Description	Notes
23	9/16" Internally-threaded Stainless Steel Rods each 4-feet long	See section C, step 8. This allows a maximum depth of 92 feet.
1	4 to 5 inch piece of Stainless Steel Rod	To serve as impact point protection while driving rods
25	3/8" Threaded Stainless Steel Studs	One per rod section, plus spares
1	Steel, Fluted Spiral Rod Entry Point	Standard Order
1	Aluminum Hinged Logo Cap	Standard Order
1	Schedule 40 PVC Pipe, 5" or 6" diameter, 20 inches long	Fits hinged logo cap
1	Sleeve Apparatus Kit (see notes)	Use either: a) One (1) schedule 40 PVC pipe, 1" diameter and at least 3 feet long with two (2) plastic end cap alignment bushings, center drilled to 9/16" b) One (1) plastic extruded fin sleeve, 1" diameter and at least 3 feet long with two (2) plastic end cap alignment bushings, center drilled to 9/16" (extruded fin sleeve)
1 Pint	PVC Cement or Epoxy	Ensure cement or epoxy adheres plastic pipe or sleeve
1 Pint	PVC Cleaning Solvent	Only if using PVC Cement
1	Grease Gun	Fills 1" grease filled sleeve
1 Tube	Food Grade, Non-Toxic Grease	Often comes in 17 ounce tubes. Use tubes which fit the grease gun.
1 cubic foot	Bagged Concrete Mix	Depends on size of hole
2 lbs	Portland Cement	If necessary, is used to enhance integrity of ready mix concrete
½ cubic feet	Washed Sand	Fills bottom of hole, inside PVC pipe, around grease filled sleeve

C. SETTING PROCEDURES

1. Logo Cap and PVC Pipe. Stamp station designation and year of establishment in proper location on logo cap. Cut a 0.5 meter (20 inch) long section of 12.7 or 15.2 centimeter (5 or 6 inch) diameter PVC pipe. Glue previously stamped aluminum hinged logo cap to one end of the pipe with solvent cement formulated for PVC or epoxy.

2. Digging the Hole. Using a power auger or post hole digger, drill or dig a round hole in the ground 0.3 to 0.35 meters (12 to 14 inches) in diameter and approximately 0.6 meters (22 inches) deep. Care should be taken to avoid a "mushroom" affect at the top of the hole during this digging process. If the top of the hole becomes irregular during the mark setting process, a round form to support the top of the concrete should be used (see step 13). Extend the center of the bottom of the hole by drilling or digging an 8 to 15 centimeters (3 to 6 inches) diameter hole an additional 0.5 meters (20 inches) deep for a total depth of 1.1 meters (42 inches). This extended area will be back-filled with washed sand around the grease filled sleeve.

3. Preparing Grease Filled Sleeve. Drill 17 millimeters (9/16 inch) holes in the two 2.5 centimeter (1 inch) PVC end caps. Ensure the drilled holes slide over and provide a snug fit around the stainless steel rod. Glue both end caps on a 0.9 meter (3.0 feet) length of PVC pipe creating the sleeve, or glue plastic end cap alignment bushings on a 0.9 meter (3 feet) long section of the plastic, extruded fin sleeve. Let glued ends dry completely. Pump food grade grease into capped sleeve until 3/4 full allowing for displacement by rod and completing the grease filled sleeve. Place grease filled sleeve into center of the lowest portion of the hole measuring for depth. The top should be about 16 centimeters (6 inches) below the ground surface. Remove the grease filled sleeve and set aside while continuing with the next steps.

4. Preparing Rods. Using a standard 11 millimeters (3/8 inch) threaded stud, attach two 1.2 meters (4 feet) long sections of stainless steel rods together. At one end, attach a standard spiral (fluted) rod entry point with an 11 millimeters (3/8 inch) threaded stud. On the opposite end attach a short 10 to 12 centimeters (4 to 5 inches) long piece of

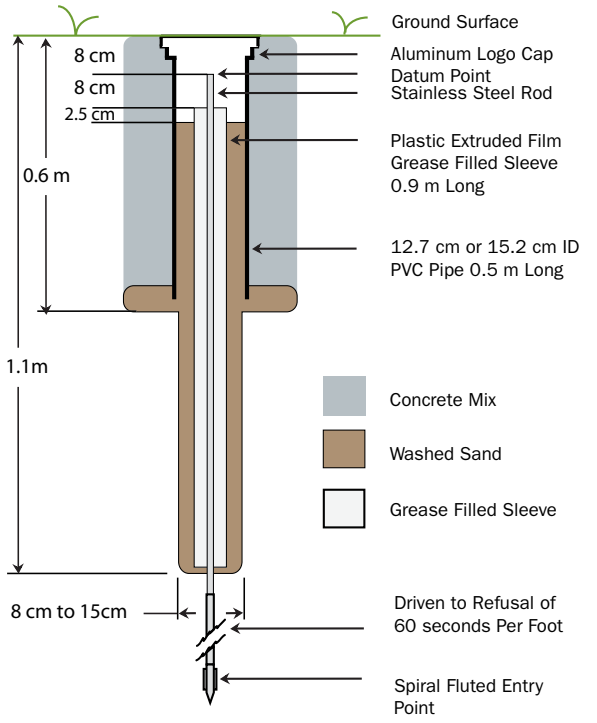


Figure B - 5. Schematic of NGS 3-D rod mark.

rod with a 11 millimeters (3/8 inch) threaded stud that will be used as the impact point while driving the rods. Tighten all connections using two pipe wrenches a good 1/4 to 1/3 turn past the point of contact of all rod ends except for the impact point which will be continually removed. This tightening requires a certain "feel" that ensures the rod ends are seated together with the greatest possible tension yet not to the point of breaking a stud. Rods tightened in this fashion should not vibrate loose when driven into the ground.

5. Driving the Rods. The 2.4 meters (8 feet) length of connected rod is centered into the bottom of the hole and driven with a 2-pound hammer until the rod is secure and as straight up and down (plumb) as possible. Usually 0.6 to 0.9 meters (2 to 3 feet) remain protruding above the hole. Drive remaining section of rod to about the top of the hole with a gas powered reciprocating driver such as Whacker model BHB 25, Pionjar model 120, Cobra Combi, or another

machine with an equivalent weight (55 or more pounds) and driving force (24 joule or 17.7 Foot-Pounds).

6. Adding Rods. Remove the short piece of rod (impact point) leaving the threaded stud in the section of rod in the ground. Attach another 1.2 meters (4 feet) long section of rod and, using a new threaded stud, thread on the impact point. This "cycling" of a new stud from impact point into top of the rods in the ground insures the integrity of the studs at all connections. Tighten securely using pipe wrenches as described above in step 4. Always tighten rods maintaining a clockwise pressure to avoid loosening the rods already in the ground. Drive the new length of rod into the ground with the reciprocating driver.

7. Achieving Required Rod Depth. Repeat step 6 until the rod refuses to drive further, known as anchored, or until a driving rate of 60 seconds per foot is achieved, i.e., it takes 60 seconds to drive 0.3 meter (1.0 foot) of rod into the ground. In the event the driven rods will not sufficiently slow down to meet desired driving rate, terminate upon reaching 27.4 meters (90 feet) or 22.5 rods. This leaves about 0.6 meter (2 feet) of rod out of the hole. If possible, leave the driven rods alone overnight to let them set up or adhere to the soil. Return the following day and drive remaining 0.6 meter (2 feet) of rod and determine whether driving rate has reduced. If rod feels secure in ground, i.e., will not rotate, use this depth even though the minimum driving rate of 60 seconds per foot has not been met. If the rod is still unsecured, turns freely in clockwise direction, a decision must be made considering further expense for the monument. Sometimes, all that is necessary to achieve a well anchored rod is driving it a few more feet. Unfortunately, in other instances, an additional hundred feet or more may be required to anchor the rods. Only rods driven to refusal or to which met the slow driving rate will be accepted for resets. Indicate in the written station description the depth of the rod and whether it was driven to refusal or met the slow driving rate. Also include a description of any unusual mark setting circumstances.

8. Finishing the Datum Point. When refusal or prescribed driving rate is reached, cut off the rod with a hacksaw or comparable tool, always removing at least the tapped and threaded portion, and leaving the top of rod about 8 centimeters (3 inches) below ground surface. Shape the top of the rod to a smooth, hemispherical surface using a portable grinding machine with a grinding attachment or sanding wheels, files and sand paper to produce a nicely finished, rounded surface. This is the datum surface and ragged edges or grinding marks are not acceptable on top of the finished rod.

9. Applying the Center Punch. The datum point must then be created by center punching a dimple on top of the rod to provide a plumbing (centering) point. Place the centering sleeve over the top of the rounded rod to facilitate locating the exact center of the rod. Punch a substantial dimple, 1.5 millimeters (1/16 inch) deep, into the top of the rod using a punch and hammer or spring loaded center punch. Several blows may be needed to create a sufficient dimple. Remember, this is the actual survey point, so don't hesitate to spend a few extra minutes to produce a professional, finished product.

10. Installing Grease Filled Sleeve. Insert the grease filled sleeve, produced in step 3, over the rod with the unfilled portion at the top. The upper end of sleeve will fill as rod displaces grease from the bottom. The datum point on top of rod should protrude through top of the sleeve about 8 centimeters (3 inches) with sleeve extending to the bottom of the hole.

11. Back-Filling with Clean Sand. Back-fill and pack the bottom 0.6 meter (24 inches) or more of the hole with washed sand around the outside of grease filled sleeve. This fills the bottom of the hole and helps stabilize the sleeve.

12. Placing Logo Cap and PVC Pipe. Place the 12.7 or 15.2 centimeter (5 or 6 inch) diameter PVC pipe and logo cap over and around the grease filled sleeve and rod in the center of the hole. The bottom of the PVC pipe should extend into the top of the sand in the bottom of the hole. Leave the top of the logo cap and PVC pipe slightly higher than the top of the ground surface until the concrete is in place. Back-fill the center of the PVC pipe with washed sand around and to within 2.5 centimeters (1 inch) from the top of the grease filled sleeve. The rod should be centered in the PVC pipe.

13. Adding the Concrete Collar. Mix concrete in a bucket or wheel barrel to pasty, well moistened consistency like mashed potatoes. Add Portland cement, if necessary, in sufficient quantity (1 to 2 pounds) to enhance the concrete mix or to help dry an over moistened mixture to produce an adequate consistency. A good indication of adequate consistency is that the mix neither runs nor falls off the shovel but sluggishly slides off and flattens upon hitting the ground. Pour concrete into the hole around logo cap and PVC pipe filling to about the ground surface. A round form made from black tar paper (felt paper) can be inserted during this filling process to create a round top for the monument. Open the logo cap and grasp the PVC pipe then shake to settle concrete around the pipe and to fill voids. Add more concrete to fill to within 1 centimeter (½ inch) of the ground surface.

14. Finishing the Top of the Concrete. Trowel the top of concrete to a smooth, fairly finished surface. Tap alternate edges of the logo cap, using a rubber mallet or hammer and wooden block, lowering it and attached PVC pipe into surface of concrete. Finish the top of the concrete by troweling a smooth, finished surface, round in appearance with the logo cap fairly centered.

15. Finishing the Mark. Add sand to the inside of the PVC pipe to bring its level to within 2.5 centimeters (1 inch) of the top of the grease filled sleeve. Clean any overlapping concrete from the surface of the logo cap using a stiff bristled brush. The finished height of logo cap and access cover should be slightly lower than the surface of the ground. The logo cap should be approximately in the center of the top of the concrete. Datum point should be about 8 centimeters (3 inches) below the cover of the logo cap and centered in the 12.7 or 15.2 centimeter (5 or 6 inch) diameter PVC pipe. The top of the grease filled sleeve should be about 8 centimeters (3 inches) below the datum point and the washed sand 2.5 centimeters (1 inch) below top of the sleeve. Clean any cement that may have gotten onto the exposed rod or datum point.

16. Clean Up. Clean all equipment and remove all debris such as extra cement, excess dirt, and trash leaving the area in the condition it was found. Remove excess grease and insure that the datum point is clean.

Attachment C. Written Station Descriptions and Digital Photographs

Written station descriptions should be concise, accurate, informative documents that enhance recovery of survey monuments. Standardized forms for writing descriptions ensure that pertinent station information is recorded completely and consistently while at the survey monument site. This reduces errors and omissions that occur when writing station descriptions from memory. See downloadable (from NGS) “Report on Relocation and Description of Reset Bench Mark” form.

Clear digital photographs of the disk should be provided which confirm agency information, disk size and type, and designation stamping as well as the condition of the mark and local surroundings. Legible pencil rubbings of the disk are acceptable in the event a clear digital photograph is not possible.

In general, written descriptions are comprised of four elements: a standardized descriptive heading, three paragraphs of text including a description of physical monument, a “to reach” narrative and permanent station reference objects with measurements therefrom.

1. Description Headings. Station description headings identify the survey monument. This heading facilitates cataloging and referencing descriptive information by the establishing agency and for others wishing to use the monument. This information includes the station designation, station identification stamping, type of monument and/or datum point, approximate latitude, longitude, elevation, and county of location, agency and date of establishment, and other pertinent data.

2. Description of Physical Monument. Text for a station description should begin with general comments consisting of a brief, approximate discussion of station site location, monument type, and setting style. This helps pinpoint the station’s location on a map and assists surveyors unfamiliar with the area. General comments include airline distances and directions from nearest towns or prominent landmarks, and a general statement about immediate area, such as “on top of the east end of a long highway cut.” A detailed description accurately describes the monument and prepares the surveyor for the type of monument expected at the site. Examples include: “The station is a 9 centimeter diameter brass NGS bench mark disk set in top of a 0.3 meters round concrete

monument 1.3 meters deep and projecting 5.0 centimeters above the ground," or "The station is the top center of a stainless steel rod recessed 80 millimeters below ground driven to refusal at a depth of 7.5 meters encased in a 0.12 meters PVC pipe with standard logo cap surrounded by concrete and flush with the ground.". Also include digital photographs of both a close-up of the mark itself, and a wider field shot of the locality surrounding the mark.

Property ownership information should be included as the last sentence for all general comment paragraphs. Ownership information, such as owner's name and address, or a comment such as "on state highway right-of-way", facilitates station access.

3. "To Reach" Narrative. Reaching the station by vehicle or other means is described in detail in the "to reach" narrative. Begin narrative at an easily located starting reference point, such as a prominent highway junction, post office, or courthouse (sometimes post offices and courthouses are harder to find than the mark, so judgment must be used). Direct the reader from the starting point with routes and described mileages, including cross-references such as road intersections, to the station site. Describe each turn, route followed, and distance traveled. Vehicle mileage, accurate to the tenth of a mile, is obtained from a vehicle's odometer and directions are determined from good maps or compass headings.

Important information regarding a station's location will not be omitted if consistent writing style is maintained for all descriptions. After initial starting point of the "to reach" is described, each new sentence should be written in the following format: go, continue, or turn; in what direction; on what road; for what distance; to what point, e.g., "Continue northwest on State Highway 22 for 2.3 km (1.4 mi) to the station on the left."

4. Permanent Station Reference Objects with Measurements. The third and final paragraph of the station description identifies exact measurements from described reference objects.

List at least three permanent reference objects with distances and directions from the station in each description. Objects measured from varying directions to station sites are essential for locating a buried monument or to help verify that it has been disturbed or destroyed. More than three measurements and references may be included as this may benefit in the event that one or more are lost through time. Exact measurements to the hundredth of a meter (centimeter), or tenth of a foot, and accurate compass derived directions save time when searching or digging for hidden or buried monuments.

Reference items such as numbered power poles, top center of culvert pipe ends, concrete head walls and wing walls, permanent fence corners and road center lines are long lasting and easily identified.

Record all distances and measurements with proper unit annotations. If both English and metric units are desired, record one within parentheses following the other measurements, again noting associated unit annotations.

Metal or fiberglass witness posts have been set near many bench marks. If one of these witness posts is near the mark to be relocated, it should be moved or replaced, if possible, to a location near the new mark. A statement of the distance and direction from witness post to new mark should be included in description.

Finally, as an additional measure to aid in relocating the bench mark, a simple position computed from a non-geodetic ("handheld") Global Navigation Satellite System (GNSS) unit may be entered. Even with meters of potential inaccuracy, such a position will assist significantly in relocating lost marks in areas where reference points may be destroyed.

5. Digital Photographs. Digital photographs are useful for station (mark) reconnaissance, mark recovery, mark stability assessment, quality control, and as an aid during data processing and data verification. Generally three photographs per station will be stored in the NGS database, which will make them accessible to future users. The three photographs are described as numbers: (1) extreme close-up, clearly legible, (2) eye-level (5 to 6 feet distant), and (3) horizontal view (approximately 10 to 30 feet distant). All three photographs require a digital caption and the correct file name. The picture filename should be the station designation, dash, photo number, dash, date, dot, jpg, e.g., M 123 RESET-1-15JUN2006.jpg. Refer to Attachment G, "Requirements for Digital Photographs of Survey Control," of the document "Scope of Work: Geodetic Leveling Surveys" available on the NGS Internet site at: http://www.ngs.noaa.gov/ContractingOpportunities/leveling_sow9a.pdf for complete details describing the submission of digital photographs.