

SECTION 10. TERMS, FORMAT, AND DEFINITIONS

10-01 INTENTION OF TERMS. The “direction,” “requirement,” “permission,” “order,” “designation,” or “prescription,” of the Engineer is intended wherever, in these Specifications or on the Plans, “directed,” “required,” “permitted,” “ordered,” “designated,” “prescribed,” or similar words are used. Similarly, “approved,” “acceptable,” “satisfactory,” or similar words imply “approved by,” or “acceptable to,” or “satisfactory to” the Engineer.

These Specifications may be written in the imperative mood. In sentences using the imperative mood, the subject, “*the Contractor*,” is implied. Also implied is “*shall*,” “*shall be*,” or similar words and phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project. The term “will” is used for “the Engineer” “the Department” or other subjects who are not Contractors.

Interpret references to a specific requirement of a numbered paragraph of the Specifications or a cited standard to include all general requirements of the entire section, Specification, or cited standard.

Working titles such as foreman and workmen are used in the specifications only for brevity and are intended to refer to persons regardless of gender.

"Provide" means furnish and install.

10-02 SPECIFICATION FORMAT. These Specifications are divided into the General Requirements and Covenants, and Parts II through XI.

The General Requirements and Covenants consist of general contract requirements for which no direct payment is made. The requirements contained in the General Requirements and Covenants are applicable to all contracts.

Each Part utilizes AASHTO’s five category format as the standard method for placing information within the Specifications. This format classifies requirements into the five categories:

- (1) Description,
- (2) Materials,
- (3) Construction Methods,
- (4) Method of Measurement, and
- (5) Basis of Payment.

Part's II through XI consist of construction contract requirements for specific items of Work. Work under these Parts is paid for directly or indirectly according to Subsection 90-02, Scope of Payment, and the specification section ordering the Work.

10-03 DEFINITION OF TERMS. Interpret the intent and meaning of the following terms and acronyms in these Specifications, in the Contract, in any documents or other instruments pertaining to construction where these Specifications govern, as follows:

AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

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

ADDENDUM. A modification of the Plans or other Contract Documents issued by the Engineer and distributed to prospective Bidders prior to the opening of the Proposal.

ADMINISTRATOR (FAA). Administrator of the Federal Aviation Administration (FAA) or their duly authorized representative.

ADVERTISEMENT (ADVERTISEMENT FOR BIDS). A public notice, as required by law, inviting bids for work to be performed and materials to be furnished.

ADVISORY CIRCULARS (AC). Publications of the FAA. When referred to in the Contract Documents, they shall be the latest current document listed in the Federal Register Checklist as of the time of Advertisement for Bids. Obtain copies from the U.S. Department of Transportation, General Services Section, or the Bureau.

AGENT. Secretary of the Department of Transportation of the State of Wisconsin, is the Sponsor's Authorized Agent in accordance with Chapter 114, Wisconsin Statutes (current edition).

AGENCY AGREEMENT. An agreement between the Sponsor and the Secretary of Transportation authorizing the Secretary to act for the Sponsor in the receipt and disbursement of funds, the supervision of the preparation and execution of legal documents, the supervision of the

preparation of Plans, Specifications and the letting of Contracts, the making of periodic inspections of construction, and the performance of incidental administrative acts and coordination necessary for the successful accomplishment of the Project within the laws of the State and the charters, laws, ordinances and resolutions of the Sponsor.

AIP. The Airport Improvement Program, a grant-in-aid program, administered by the FAA and successor programs.

AIR OPERATIONS AREA. Air Operations Area (AOA) means any area of the Airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An AOA includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

AIRPORT. Any area of land or water which is used, or intended for use, for the landing and takeoff of aircraft, and any appurtenant areas which are used, or intended for use, for Airport buildings or other Airport facilities or rights-of-way, together with all airport buildings and facilities located thereon.

APRON. The area of the Airport required by airplane pilots to position airplanes during ground operations, not involving landing, taxiing and takeoff.

ASTM. The American Society for Testing and Materials.

AWARD. The acceptance, by the Department, of the successful Bidder's Proposal.

BASE COURSE. The layer or layers of material placed on a subbase or subgrade to support a flexible surface course.

BIDDER. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a Proposal for the Work contemplated.

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

BUREAU. The Bureau of Aeronautics of the Department of Transportation of the State of Wisconsin.

CALENDAR DAY. Every day shown on the calendar.

CERTIFICATE OF COMPLIANCE (MANUFACTURER'S CERTIFICATE). A document, provided by a manufacturer, producer, or supplier of a product, that states the product, as furnished to the Contract or, complies with the pertinent Specifications and Contract requirements.

CERTIFIED REPORT OF TEST OR ANALYSIS. A test report, provided by a manufacturer, producer, or supplier of a product, indicating actual results of tests or analyses, covering elements of the Specification requirements and validated by certification.

CHANGE ORDER. A written order, authorization, or agreement, executed by the Contractor and the Department, covering work not otherwise provided for, revisions in or amendments to the Contract, or conditions specifically prescribed in the Specifications as requiring Contract Change Orders. The document becomes a part of the Contract when executed by the contracting parties.

COMPLETION DATE. Calendar date shown in the Proposal on or before the Work contemplated under this Contract shall be completed.

CONTRACT. The written agreement between the Department and the Contractor setting forth the obligation of the parties; including, but not limited to, the performance of the Work, the furnishing of labor and materials, and the basis of payment, as described in the Contract Documents.

CONTRACT DOCUMENTS. The Contract Documents include the Advertisement for Bids, Proposal Forms, Contract Form and Contract Bonds, Specifications, Supplemental Specifications, Special Provisions, Schedule of Prices, Addenda, Wage Rates, general and detailed Plans, and these General Requirements and Covenants, and any Contract Change Orders and Agreements that are required to complete the construction of acceptable Work, including authorized extensions thereof, all of which constitute one instrument.

CONTRACT BONDS. The approved form of security, executed by the Contractor and their surety or sureties, guaranteeing the faithful performance of the Contract and the payment, to persons entitled thereto, of all claims as provided in Section 779.14, Wisconsin Statutes. (See Performance Bond and Payment Bond.)

CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the Contract.

CONTRACT TIME. The number of working days, stated in the Proposal, allowed for completion of the Contract, including authorized time extensions. If a calendar date of completion is stated in the Proposal, instead of a number of working days, the Contract shall be completed by that date.

CONTRACTOR. The party of the second part to the Contract; the individual partnership, joint ventures, corporation or agency undertaking the execution of the Work under the terms of the Contract and acting directly or through a duly authorized representative.

CONTROLLING ITEM OF WORK. The item shown on the approved progress schedule that must be partially or wholly completed in accordance with the approved progress schedule to permit progress essential for the completion of the Work within the Contract period.

DEPARTMENT. The Department of Transportation of the State of Wisconsin.

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

ENGINEER. The Secretary of the Department of Transportation of the State of Wisconsin or their authorized representative limited by the particular entrusted duties.

EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the Work.

EXTRA WORK. An item of work not provided for in the awarded Contract as previously modified by Change Order, but which is found by the Engineer to be necessary to complete the Work within the intended scope of the Contract as previously modified.

FAA. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA means the Administrator or a duly authorized representative.

FORCE ACCOUNT. A basis of payment for the directed performance of Work, with payment based on the actual cost of labor, equipment, materials furnished, and consideration for overhead and profit.

FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

HAZARDOUS SUBSTANCE. Any substance or combination of substance including any waste of a solid, semisolid, liquid or gaseous form that may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or that may pose a substantial present or potential hazard to human health or the environment.

INSPECTOR. An authorized representative of the Engineer assigned to make inspections and/or tests of the Work performed or being performed, or of the materials furnished or being furnished by the Contractor.

LABORATORY. The official testing laboratories of the Department or other laboratories that are designated by the Engineer.

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

MATERIALS. Substances specified for use in the construction of the Contract Work.

NOTICE TO PROCEED. A written notice to the Contractor of the time they shall begin the prosecution of the Work.

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

PAYMENT BOND. The approved form of security furnished by the Contractor and the Contractor's surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the Work.

PERFORMANCE BOND. The approved form of security furnished by the Contractor and the Contractor's surety as a guaranty that the Contractor will complete the Work in accordance with the terms of the Contract.

PLANS. The official drawings or exact reproductions approved by the Department that show the location, character, dimensions, and details of the Airport. Plans also show the Work to be done, which is considered a part of the Contract, supplementary to the Specifications. Plans can also be referred to as Drawings.

PROJECT. The agreed scope of Work for accomplishing specific Airport development with respect to a particular Airport.

PROPOSAL. The written offer of the Bidder (when submitted on an approved Proposal form) to perform the contemplated Work and furnish the necessary materials in accordance with the provisions of the Plans, Specifications, General Requirements and Covenants, Special Provisions, Supplemental Specifications, Wage Rates, Schedule of Prices, and Addenda.

PROPOSAL GUARANTY (BID BOND). The security furnished with a Proposal to guaranty that the Bidder will enter into a Contract if the Bidder's Proposal is accepted by the Department.

RESIDENT ENGINEER. The representative of the Engineer, directly assigned to the Project.

RESPONSIBLE BIDDER. A Bidder determined by the Department to possess the ability to perform the Contract Work and complete the Contract Requirements.

RIGHT-OF-WAY. All lands or other property interests provided or acquired for the development and operation of an Airport and its appurtenances.

RUNWAY. The area on the Airport prepared for the landing and takeoff of aircraft.

SECRETARY. Secretary of Transportation of Department of Transportation, State of Wisconsin.

SCHEDULE OF PRICES. The schedule containing a list of the Pay Items, corresponding quantities, and the Bidder's Bid Prices for the Work to be included in the Contract.

SHOULDER. An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection.

SHOP DRAWINGS. Drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work.

SPECIAL PROVISIONS. Special directions, provisions or requirements peculiar to a project and not otherwise thoroughly or satisfactorily detailed or prescribed in the Specifications.

SPECIFICATIONS. The body of directions, provisions and requirements contained herein, or in supplements thereto, together with written agreements and all documents of any description, made or to be made, pertaining to the method or manner of performing the Work, the quantities and the quality of materials to be furnished under the Contract.

SPONSOR. The Owner of an Airport controlling the site on which the construction Work is performed. The term "Owner," when used in reference to the Airport Owner, has the same meaning as the term "Sponsor."

STANDARD SPECIFICATIONS. Written directions and requirements approved for general application and repetitive use; as contained herein for airport construction and for administration of the Contract.

STATE. The State of Wisconsin.

STRUCTURES. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the Airport that may be encountered in the Work and not otherwise classified herein.

SUBBASE. The layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course; or in the case of Portland cement concrete pavement, the layer that lies immediately below the concrete pavement.

SUBCONTRACTOR. An individual, partnership, joint venture or corporation to whom the Contractor, with the written consent of the Department, sublets any part of the Contract.

SUBGRADE. The soil that forms the pavement foundation.

SUPERINTENDENT. The Contractor's executive representative who is present on the Work during progress, authorized to receive and fulfill instructions from the Engineer, and who supervises and directs the construction.

SUPPLEMENTAL SPECIFICATIONS. Written directions and requirements adopted subsequent to the publication of the Standard Specifications, which amend the Standard Specifications.

SURETY. The company executing a bond with the Contractor to ensure acceptable performance of the Contract and for payment of all obligations pertaining to the Work.

SURFACE COURSE. One or more layers of a pavement structure, the top layer of which resists skidding, traffic abrasion and the disintegrating effects of climate.

TARGET VALUE (DENSITY). A number established as a center for operating a given process. Once established, adjustments should be made in the process as necessary to maintain a central tendency about the target value. Test results obtained from a well-controlled process should cluster closely around the established target value and the mean of the test results should be equal to or nearly equal to the established target value.

TAXIWAY. For the purpose of this document, the term taxiway means the portion of the AOA of an Airport that has been designated by competent Airport authority for movement of aircraft to and from the Airport's runways or aircraft parking areas.

UNBALANCED BID. A bid containing lump sum or unit price bid items that do not reflect reasonable actual costs of labor, equipment, materials, profit, overhead costs and indirect costs to the bidder.

WORK. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the Contract Documents, Plans, and Specifications.

WORKING DAY. A calendar day except Saturdays, Sundays, and specified legal holidays, and the period from November 16 to March 31 (both dates inclusive) on which weather and other conditions not under the control of the Contractor will permit construction operations to proceed for at least 8 hours of the day with the normal working force engaged in performing the controlling item of Work that would be in progress at this time.

SECTION 20. PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 COMPETENCY OF BIDDERS. Each Bidder shall furnish the Department with satisfactory evidence of their competency to perform the Work contemplated. The qualification requirements will be stated in the Advertisement for Bids.

Any individual, partnership, or corporation desiring to bid on work under the jurisdiction or direct supervision of the Department shall furnish a statement, on a form provided by the Department, which fully states the financial ability, adequacy of plant, equipment and organization, prior experience, and other pertinent and material facts required. The Department shall receive these statements for examination and consideration no later than the time stated in the legal Advertisement for Bids.

For statements completed under the Statement of Bidder's Qualifications and Experience, the Department will determine the classification/capacity of work on which the Bidder will be eligible to bid. The qualification, except as specifically extended, withdrawn, or reduced by the Department, will be on an annual basis and will expire 1 year and 4 months after the date of the approval determination.

In addition to the approval of the Statement of Bidder's Qualifications and Experience or Bidders inclusion on other "lists," as stated in the Advertisement for Bids, each Bidder shall submit a *Request to Bid/Current Workload* Form for each Proposal. The *Request to Bid/Current Workload* Form should list the contracts and subcontracts representing all incomplete work in or out-of-State under contract at that given time. The Department should receive this form no later than 24 hours prior to the time for opening of Bids. The determination of acceptability of the information submitted and authorization to bid is at the sole discretion of the Department. The Department will contact the Bidder on the Department's determination for authorization to bid.

Prior establishment of the competency of a prospective Bidder will not be required for specific contemplated work when indicated in the Advertisement for Bids.

20-02 CONTENTS OF PROPOSAL FORMS. 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. The form will also have a Schedule of Prices for which unit prices are invited. The Proposal Form will state the time in which the Work must be completed, the amount of the Proposal Guaranty, and the date and hour after which Proposals will no longer be received. The form will be accompanied by Bidding Documents in addition to these Specifications.

All papers bound with or attached to the Proposal Form are considered a part of the Bidding Documents and must not be detached or altered when the Proposal is submitted. The Plans, Specifications, and other documents designated in the Proposal Form will be considered a part of the Proposal whether attached or not.

20-03 FURNISHING OF PROPOSAL FORMS, PLANS, AND SPECIFICATIONS. Proposal Forms are included with the Plans and Specifications. Proposals are subject to the provisions of Section 66.29 and Chapter 114 of the Wisconsin Statutes.

Plans and Specifications that govern the Work are on file and available for office examination at the Office of the Wisconsin Bureau of Aeronautics, Room 701, Hill Farms State Transportation Building, 4802 Sheboygan Avenue, Madison, Wisconsin and at other locations as stated in the Advertisement for Bids. The Advertisement for Bids provides the location for purchasing Bidding Documents.

The type of qualification requirements will be stated in the Advertisement for Bids. Subsection 20-01, Competency of Bidders, and the Advertisement for Bids provide the requirements for the establishment of the competency of prospective Bidders for the submittal of their Proposal. Subsection 20-12, Disqualification of Bidders, outlines some of the causes for disqualification of the Bidder and rejection of Bid(s).

20-04 INTERPRETATION OF QUANTITIES IN SCHEDULE OF PRICES. An estimate of the quantities of Work to be done or materials to be furnished is given in the Schedule of Prices.

Consider itemized quantities of Work as approximate and for the comparison of Bids only. The Bidder shall not plead deception or misunderstanding of the character, location, or other condition pertaining to the Work due to variations of estimated quantities. The unit prices to be tendered by the Bidder are to be tendered expressly for the scheduled Pay Items of Work. Payment to the Contractor will be made only for the actual quantities of the Work performed or materials furnished in accordance with the Contract. The scheduled quantities of Work to be done or materials to be furnished may each be increased or decreased as provided in Subsection 90-03, Increased or Decreased Quantities, without in any way invalidating the Bid Prices.

20-05 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. Carefully examine the Work site, the Proposal Form, Plans, Specifications, Supplemental Specifications, Special Provisions, Addenda, and Contract Forms for the Work contemplated. The submission of a Proposal will be considered conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered in performing the Work, and as to the character, quality, and quantities of Work to be performed and materials to be furnished, including increases and decreases, and as to the requirements of the Plans, Specifications, Supplemental Specifications, Special Provisions, Addenda, and Contract.

When the Plans, Special Provisions, or Addenda contain information relative to subsurface exploration, borings, soundings, water levels, elevations, profiles, or other preliminary investigations, that information represents only the best knowledge of the Engineer and was obtained for design and estimating purposes only. It is only included for the convenience of the Bidder, and is not intended as a substitute for personal investigation, interpretation, and judgment of the Bidder. The information given is applicable only to the locations indicated and shall not be construed to apply uniformly throughout the Project site.

20-06 PREPARATION OF PROPOSAL. Submit the Proposal on the form furnished or in the format approved by the Department. Instead of using the Department's Schedule of Prices, the Bidder may submit a computer generated substitute schedule with the Proposal. The substitute schedule shall be in a format conforming to the Department's guidelines for approval of computer generated Schedule of Prices and must be approved in writing by the Department prior to use. The Proposal shall be executed properly and shall clearly specify a numerical unit price in dollars and cents for each Pay Item listed. It shall also show in the column provided for that purpose, the numerical products of the respective unit prices and quantities, and the total amount of the Bid obtained by adding the extended amounts of the several Pay Items. A lump sum Pay Item should be shown as the same price in dollars and cents in the unit price column and in the extended amount column pertaining to that Pay Item. If one column is left blank for a lump sum Pay Item, the single amount shown will be used to obtain the total amount of the Bid.

If a unit price or lump sum price already entered by the Bidder in the Proposal is to be altered, it shall be crossed out with ink or typewriter and the new price entered above or below and initialed by the Bidder with ink.

Changes made by the Bidder in the Proposal in accordance with a specific instruction contained in any Addendum issued by the Department will not be considered to be an alteration within the meaning of these Specifications.

Unless otherwise required in the Special Provisions, when Alternate Bids are requested, a Bid on each alternate will be required.

In case of a conflict between a unit price and the corresponding extended amount, or in the absence of an extended amount, the unit price will govern.

All writing shall be in ink or typewriter, except the signature of the Bidder that shall be written with ink.

A Proposal submitted by an individual shall be signed by the Bidder or a duly authorized agent. A Proposal submitted by a partnership shall be signed by a member or a duly authorized agent. A Proposal submitted by a corporation shall be signed by an authorized officer or duly authorized agent of the corporation, and the Proposal shall show the name of the State under the laws of which the corporation was chartered. The required signatures shall in all cases appear in the space provided on the Proposal. All addenda to the Contract Documents shall be attached to the Proposal submitted by the Bidder.

20-07 IRREGULAR PROPOSALS. Proposals will be considered irregular and may be rejected if they show alterations of form or format, additions or amendments not called for, alterations or omissions in Pay Item numbers, quantities, descriptions or units of measure, incomplete Bids, erasures, or irregularities.

Use of a Department approved computer generated Schedule of Prices will not be considered an alteration of form or format within the meaning of these Contract Documents.

Department approved computer generated Schedule of Prices will be considered irregular and may be rejected if they show any alterations of format, additions or amendments not called for, errors or omissions in units of measure, or erasures.

If on a computer generated Schedule of Prices the quantity is incorrect, then the quantity will be corrected.

If on a computer generated Schedule of Prices the Pay Item number is correct and the description is incorrect, then the description will be corrected.

If on a computer generated Schedule of Prices the Pay Item number is incorrect and the description is correct, then the item number will be corrected.

A correct Pay Item number that is out of sequence remains a correct item number, provided the description is also correct.

Proposals will be considered irregular and will be rejected for, but not necessarily limited to, the following reasons:

- a. Failure to furnish the required Proposal Guaranty in proper form and amount.
- b. Failure to submit a unit price for each Pay Item listed, except for lump sum Pay Items where the price may be shown in the extension column pertaining to that Pay Item.
- c. The inclusion of conditions or qualifications not provided for in the Bid Proposal form.
- d. Proposals tendered as a Bid by a Bidder other than the one to who originally issued.

- e. Unauthorized revisions in the name of the party to whom issued.
- f. Failure to sign the Proposal.
- g. Wrong computer generated Schedule of Prices attached to the Proposal.
- h. Incorrect item number and incorrect description for a single line on a computer generated Schedule of Prices.
- i. Omitted items on a computer generated Schedule of Prices.
- j. Illegibly printed item numbers, descriptions, or unit prices on a computer generated Schedule of Prices.

20-08 PROPOSAL GUARANTY. No Proposal will be considered unless accompanied by properly executed Bid Bond, of not less than 5 percent of the total bid, ON THE DEPARTMENT'S FORM contained in the Proposal, or cashier's check, certified check, bank's check or postal money order in the amount designated on the Proposal and payable to the Department. Certified checks will be drawn on the account of the Bidder submitting the Proposal.

The Bidder may also meet the above requirements by having a properly executed annual Bid Bond of not less than 5 percent of the total bid(s) on file with the Department. The annual Bid Bond shall be on the FORM PROVIDED BY THE DEPARTMENT.

The surety issuing the Bid Bond must have an equivalent A.M. Best rating of A- or better, and must be licensed to do business in the State of Wisconsin.

If alternate Bids are invited and submitted, the Bidder may submit one Proposal Guaranty in the total amount required for the combined alternate which will also be considered as covering each individual Proposal.

20-09 DELIVERY OF PROPOSAL. Place each Proposal, together with the Proposal Guaranty, in a sealed envelope, furnished by the Department, and mark the envelope to indicate the project number, the location of the Airport, and the name and business address of the Bidder. When sent by mail, enclose the sealed Proposal marked as indicated above in an additional envelope. Proposals will be received at the place and until the hour on the date designated in the Advertisement for Bids. Proposals received after the time designated will be returned to the Bidder unopened.

20-10 WITHDRAWAL OF PROPOSALS. All proposals filed with the Department will be kept secure and unopened and will not be allowed to pass out of the custody of a representative of the Department except on written request of the Bidder or their authorized representative made prior to expiration of the time set for receiving Proposals. If a withdrawal is made, the prospective Bidder is not entitled to bid on the Contract unless the same is readvertised.

20-11 PUBLIC OPENING OF PROPOSALS. Proposals will be opened publicly at the time and place indicated in the legal Advertisement for Bids. The grand total of each Proposal will be read. In the event a grand total is not shown, a "no total" will be announced.

Bidders or their authorized agents and other interested persons are invited to be present.

The time of receiving and opening Bids may be postponed by the Department. When circumstances arise which the Department determines to necessitate changing the time or date for receipt of Bids, the prospective Bidders will be notified by the Department by issuance of an Addendum or by public notice.

20-12 DISQUALIFICATION OF BIDDERS. Any one or more of the following causes may be considered as sufficient for rejection of the Bid or Bids and disqualification of the Bidder from further bidding for a period of time as may be determined by the Department.

- a. Developments, subsequent to establishment of a Bidder's competency and qualifications, which in the opinion of the Department would reasonably be construed as affecting the responsibility of the Bidder.
- b. Conviction of a major violation of a State or Federal law, or a rule or regulation of a Federal department, board or bureau, or a State department, board or commission, relating to or reflecting on the competency of the Bidder for performing airport construction work.
- c. More than one Proposal for the same work from an individual, partnership, or corporation under the same or different names.
- d. Indictment for or evidence of collusion among Bidders.
- e. Lack of responsibility as shown by past work for the Department.
- f. Noncompliance with terms of previous or existing contracts.

g. Uncompleted work which in the judgment of the Department might hinder or prevent the completion of the additional work, if awarded.

h. Uncompleted work on which the actual time used has exceeded the Contract Time set, or on which the performance or progress is not satisfactory in the judgment of the Department.

SECTION 30. AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF PROPOSALS. After the Proposals are publicly opened and read, they will be compared on the basis of the summation of the lump sum prices and the products. This is obtained by multiplying the estimated quantities by the unit prices offered in the Schedule of Prices. In case of discrepancy between the gross sum shown in the Proposal and that obtained by adding the products of the quantities of Work and the unit prices, the unit prices will govern and all errors found in the products and summation will be corrected. If a gross sum is not shown, the gross sum will be obtained by adding the correct extended amounts.

Until the award of a Contract is made, the Department reserves the right to reject a Bidder's Proposal for any of the following reasons:

- a. If the Proposal is irregular as specified in Subsection 20-07, Irregular Proposals.
- b. If the Bidder is disqualified for any of the reasons specified in Subsection 20-12, Disqualification of Bidders.

The Department may take into consideration the responsibility of the Bidder as determined from a study of the data required in Subsection 20-01, Competency of Bidders..

Consideration will be given to determining whether irregularities are matters of form rather than substance and can be waived without prejudice to other Bidders or the public interest.

Proposals in which any of the unit prices are significantly unbalanced may be rejected.

In addition, until the award of a Contract is made, the Department reserves the right to reject all Proposals, waive technicalities (if the waiver is in the best interest of the Department and Sponsor 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. All these actions will promote the Department's and Sponsor's best interests.

30-02 AWARD OF CONTRACT. The award of a Contract, if it is to be awarded, will be made within 30 calendar days of the date specified for publicly opening Proposals, unless otherwise specified .

Award of the Contract will be made by the Department to the lowest, responsible Bidder whose Proposal conforms to the cited requirements of the Department. Should no award be made within 30 days after the date of opening of Proposals, the lowest responsible Bidder may, upon the expiration of such period, request in writing that the award be made within a stipulated time not less than 10 days, exclusive of Sundays and holidays, after the date of the request. Should no award be made within the stipulated time, the lowest responsible Bidder shall be relieved of their obligation to execute a Contract and Contract Bonds.

NOTE TO SPECIFIER:

For AIP contracts, unless otherwise specified in this subsection, no award shall be made until the FAA has concurred in the sponsor's recommendation to make such award and has approved the sponsor's proposed contract to the extent that such concurrence and approval are required by 49 CFR Part 18. If there is a change required in the length of time to award, the WBOA will initiate the changes.

30-03 CANCELLATION OF AWARD. The Department reserves the right to cancel the Award without liability to the Bidder, except return of Proposal Guaranty, at any time before a Contract has been fully executed by all parties and is approved by the Department in accordance with Subsection 30-07, Approval of Contract.

30-04 RETURN OF PROPOSAL GUARANTY. All Proposal Guaranties, except those of the two lowest Bidders, will be returned immediately after the Department has made a comparison of bids as specified in the Subsection 30-01, Consideration of Proposals. Proposal Guaranties of the two lowest Bidders will be retained by the Department until an award is made, at which time, the unsuccessful Bidder's Proposal Guaranty will be returned. The Proposal Guaranty of the lowest responsible Bidder will be returned when the Contract, Performance and Payment Bonds, and other documents required to be filed by the Bidder have been properly executed and submitted in proper form to the Department. In the event no award is made within the extended time stipulated by the lowest responsible Bidder, as provided by Subsection 30-02, Award of Contract, the Bidder's Proposal Guaranty will be returned promptly upon expiration of the extended time.

30-05 REQUIREMENTS OF CONTRACT BONDS. Upon execution of the Contract, the successful Bidder shall furnish the Contract Bonds that have been fully executed by the Bidder and the Surety guaranteeing the performance of the Work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the Work. A 100 Percent Performance and 100 Percent Payment Bond in the amount of the Contract awarded shall be furnished. Bonds shall be on the form furnished by the Department, executed by a Surety acceptable to the Department, and licensed to do business in Wisconsin.

NOTE TO SPECIFIER:

49 CFR Part 18 provides that sponsors of AIP contracts awarded in excess of \$100,000 should use local bonding policy and requirements provided that the FAA has made a determination that the Government's interest is adequately protected. If such a determination has not been made, the performance and payment bonds shall be in the full amount of the awarded contract. For AIP contracts awarded in an amount of \$100,000 or less, the sponsor should specify bonding in accordance with local requirements.

30-06 EXECUTION OF CONTRACT. The successful Bidder shall execute the necessary agreements for entering into the Contract and return the signed Contract to the Department, along with the fully executed Contract Bonds specified in Subsection 30-05, Requirements of Contract Bonds, within 15 calendar days from the date of Notice of Award of the Contract.

30-07 APPROVAL OF CONTRACT. Upon receipt of the Contract, Contract Bonds, and other required documents that have been executed by the successful Bidder, the Department will complete the execution of the Contract and return the fully executed Contract to the Contractor. No Contract will be considered binding upon the Department until the final execution of the Contract Agreement. The date of final execution of the Contract will be the date of the final signature .

30-08 FAILURE TO EXECUTE CONTRACT. Failure of the successful Bidder to return required forms or to supply information requested by the Department and to execute the Contract and furnish acceptable Contract Bonds within 15 calendar days after the date of Notice of Award of the Contract, at the discretion of the Department, will be just cause for annulment of the award and forfeiture of the Proposal Guaranty to the State, not as a penalty, but as liquidation of damages to the Department. Award may then be made to the next qualified Bidder, or the Project will be readvertised, or handled as the Department may elect.

30-09 RIGHT OF BIDDER TO NULLIFY PROPOSAL (ABROGATION). Should the Department fail to execute a Contract within 30 days after the filing of the Contract by Bidder, together with acceptable Contract Bonds and such other schedules, or documents as are required to be filed, all in proper form and order, the Bidder may nullify their acceptance of the Contract by their filing due notice of intent with the Department. The notice shall be in writing and may be filed at any time after the expiration of 30 days after the filing by the Bidder in proper form and order of the required Contract Documents. The notice shall stipulate the maximum number of days, not less than 10, exclusive of Sundays and holidays, within which the Contract will be executed by the Department. Failure of the Department to execute the Contract within the time set forth in the notice, will be construed to be a Department acceptance of the nullification of the Bid, and the Bidder and Bidder's Surety will be relieved of all obligations to the State that may have been incurred under the Contract and Contract Bonds.

It is agreed and understood, however, that nullification is a purely voluntary act of the Bidder, and no liability or obligation toward the Bidder, Bidder's Surety, or any other party who may have an interest, directly or indirectly in the Contract, has been incurred by the Department.

Unless and until the Bidder files a notice of nullification, and until the notice becomes effective, if filed, the Contract may be executed by the Department without prejudice to any of the terms and conditions.

SECTION 40. SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the Contract is to provide for construction and completion, in every detail, of the Work described in the Contract Documents. Furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the Work according to the Contract.

40-02 ALTERATION OF WORK AND QUANTITIES. A Major Pay Item is a Pay Item whose total cost, by multiplying the original quantity and the corresponding unit price, is equal to or greater than 5 percent of the total amount of the original Contract. A Minor Pay Item is one whose total cost, determined as above, is less than 5 percent of the total amount of the original Contract. A Minor Pay Item will become a Major Pay Item when increased to the extent that the total cost of the Pay Item becomes equal to or greater than 5 percent of the total amount of the original Contract.

If the quantity of a Major Pay Item required to complete the Work varies from the original estimated quantity for that Pay Item by 25 percent or less, payment for the quantity of Work actually performed for that Pay Item will be made based upon the original unit price.

Should the quantity of a Major Pay Item of Work be decreased more than 25 percent from the original estimated quantity for that Pay Item, an adjustment will be made in the unit price; provided the total payment for the final quantity will not exceed that which would be made for 75 percent of the original estimated quantity, at the original unit price for that Pay Item.

Should the quantity of a Major Pay Item of Work be increased more than 25 percent above the original quantity for that Pay Item, an adjustment in the unit price will be made and applied to quantities of the Pay Item required in excess of 125 percent of the original estimated quantity.

The adjustment or revision of unit prices will be negotiated on the basis of actual cost for the entire Pay Item plus a negotiated allowance for profit and applicable overhead.

Where a Minor Pay Item has been increased to become a Major Pay Item, any adjustment in the unit price for the Item will apply only to that quantity of the item having a value, determined from the unit price, in excess of 6-1/4 percent of the total amount of the original Contract.

Minor Pay Items that, as increased, do not qualify for adjustment as a Major Pay Item, or are not a part of an approved subcontract, or, if a part of an approved subcontract, vary from the original quantity for the Item by 50 percent or less, will be paid for at the original unit price.

Should the quantity of a Minor Pay Item of Work, that is part of an approved subcontract and exceeds 10 percent of the original value of the subcontract, be decreased more than 50 percent, the Contractor may submit a request for a revision of the unit price for that Pay Item and shall submit evidence to support the claim. The claim will be considered insofar as it justifies an increase in the pro rata share of the fixed expense chargeable to that Pay Item because of the decreased quantity; provided the total payment for the final quantity will in no case exceed that which would be made for 75 percent of the original quantity at the original unit price.

Should the quantity of a Minor Pay Item of Work that is part of an approved subcontract and exceeds 10 percent of the original value of the subcontract be increased more than 50 percent from the original Contract quantity for that Pay Item, and which as increased does not qualify for adjustment as a Major Pay Item, either party to the Contract may submit a request to the other for a revision of the unit price for the quantity of the Pay Item as is in excess of 125 percent of the original quantity. The revision of the unit price will be negotiated on the basis of actual cost for the entire Pay Item, plus a negotiated allowance for profit and applicable overhead.

The Department reserves the right to make, in writing, at any time during the Work, changes in quantities and alterations in the Work as are necessary to complete the Project satisfactorily. These changes in quantities and alterations will not invalidate the Contract nor release the Surety, and the Contractor agrees to perform the Work as altered.

If the alterations or changes in quantities significantly change the character of the Work under the Contract, whether or not changed by different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the Contract. The basis for the adjustment will be agreed upon prior to the performance of the Work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Department may determine to be fair and equitable.

If the alterations or changes in quantities do not significantly change the character of the Work to be performed under the Contract, the altered Work will be paid for as provided elsewhere in the Contract.

The term "significant change" applies only to the following circumstances:

a. When the character of the Work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or

b. When a Major Pay Item of Work is increased in excess of 125 percent or decreased below 75 percent of the original estimated quantity for that Pay Item. An allowance for an increase in quantity will apply only to that portion in excess of 125 percent of original Pay Item quantity, or in case of a decrease below 75 percent, to the actual amount of Work performed.

c. When a minor Pay Item of Work, is part of an approved subcontract and exceeds 10 percent of the original value of the subcontract, is increased or decreased more than 50 percent from the original Contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of the original Contract quantity, or in the case of a decrease below 50 percent, to the actual amount of Work performed.

The Work involved in significant changes will be paid for at adjusted Contract unit prices as provided, except as portions of it may qualify as Extra Work in accordance with the provisions of Subsection 90-05, Payment For Extra and Force Account Work .

NOTE TO SPECIFIER:

Supplemental Agreements (Change Orders) on AIP Contracts (indicated by AIP number on Contract), shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds \$2,000. However, if the Contractor elects to waive the limitations on work that increases or decreases the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of Labor wage determination as was included in the originally awarded contract.

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

40-03 OMITTED ITEMS. The Department may omit or modify the quantity of any Contract Pay Item, as provided in Subsection 40-02, Alteration of Work and Quantities. These modifications of will not invalidate any other Contract provision or requirement.

Should a Contract Pay Item be omitted or otherwise ordered to be nonperformed, the Contractor will be paid for acceptable Work performed toward completion of the Pay Item prior to the date of the order to omit the Pay Item. Payment for Work performed will be in accordance with the Subsection 90-04, Payment for Omitted Items.

40-04 EXTRA WORK. In connection with the Work covered by the Contract, the Engineer, at any time during its progress, may order other work or materials incidental to the Work. All Work and materials that do not appear in the Proposal or Contract as a specific item accompanied by a unit price, and are not included under the price bid for other items in the Contract, will be designated as Extra Work. Extra Work also may consist of additions to or changes in design of Contract items or portions of Contract items, when these additions are wholly disassociated from or outside the scope of the Work in the Plans, Special Provisions, Addenda and Specifications, and when the Work caused by these additions or changes in design must be performed under conditions or in a manner materially and inherently different from the conditions and manner existent for the Contract items under the original scope of the Work. The Contractor shall perform Extra Work whenever it is deemed necessary or desirable by the Engineer to complete the project as originally contemplated, or as subsequently altered, and it shall be done in accordance with the requirements in the Contract Documents.

Submit a written proposal of the Work plan to be followed, the equipment to be used, and the amount and character of labor to be employed. The Engineer will approve the proposal.

Except when directed by the Engineer, do not perform Extra Work until a Contract Change Order has been authorized. Claims for compensation for Extra Work performed, that has not been authorized and not covered by Contract Change Order, may be rejected.

The Contract Change Order for Extra Work may provide for payment at an agreed lump sum for the Work described, an agreed unit price basis for the units of Extra Work performed, or on a force account basis as stipulated in Section 90.

40-05 MAINTENANCE OF TRAFFIC. The most important consideration of the Contract is the safety of aircraft, as well as the Contractor's equipment and personnel. It is understood and agreed that the Contractor shall:

a. Provide for the free and unobstructed movement of aircraft in the Air Operations Areas of the Airport with respect to Contractor's own operations and the operations of Contractor's subcontractors as specified in the Subsection 80-04, Limitation of Operations .

b. Provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the Airport as specified in the Subsection 70-15, Contractor's Responsibility for Utility Service and Facilities of Others

NOTE TO SPECIFIER:

Special conditions affecting the Contractor's operations during IMC must be specified in the Special Provisions. For example, if the Sponsor must maintain VOR or Localizer signals during IMC, the Contractor may be required to discontinue certain operations; or a Contractor may be required to have a Flight Check performed, thus requiring the Contractor to cooperate with the FAA Airways Facilities Sector Office.

c. With respect to Contractor's and subcontractor's operations, provide marking, lighting, and other acceptable means of identifying the following items that may be hazardous to the operation of aircraft, fire-rescue, or maintenance vehicles at the Airport:

- (1) Personnel
- (2) Equipment
- (3) Vehicles
- (4) Storage areas
- (5) Work areas
- (6) Conditions

d. When the Contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the performance of Work that is otherwise provided for in the Contract, Plans, and Specifications, keep the road, street, or highway open to all traffic and provide the maintenance required to accommodate traffic. Furnish, erect, and maintain barricades, warning signs, flagmen, and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified. Also, construct and maintain in a safe condition temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets, or highways. Unless otherwise specified, the Contractor will not be required to furnish snow removal for the existing road, street, or highway.

Make an estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic, as specified in this Subsection. The cost of maintaining the aircraft and vehicular traffic, specified in this Subsection, will not be measured or paid for directly, but shall be included in the various Contract Pay Items.

40-06 REMOVAL OF EXISTING STRUCTURES. Remove all existing structures encountered within the established lines, grades, or grading sections, unless the existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the Work, or to remain in place. The cost of removing such existing structures will not be measured or paid for directly, but shall be included in the various Contract Pay Items bid, unless separate Contract Pay Items are included in the Schedule of Prices.

Notify the Engineer prior to disturbing an existing structure (above or below ground) in the Work for which the disposition is not indicated on the Plans. The Engineer, in accordance with provisions of the Contract, will immediately determine the disposition of the existing structures in question.

Except as provided in Subsection 40-07, Rights and Use of Materials Found in the Work, all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the Work) shall be utilized in the Work as otherwise provided for in the Contract and shall remain the property of the Sponsor when so utilized in the Work.

NOTE TO SPECIFIER:

The removal of large or complicated existing structures such as box-culverts, underground storage tanks, large underground electrical vaults, large reinforced concrete structures or foundations, or similar existing airport facilities should be provided for in separate technical specifications. Contract pay items should also be provided in the contract proposal to cover payment for such work. Refer to Specification Item P-158 Removing Miscellaneous Structures.

40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK. Should material be encountered such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the Contract to be either embankment or waste, either:

- a. Use the material in another Contract Pay Item, providing the use is approved by the Engineer and is in conformance with the Contract Specifications applicable to the use,
- b. Remove the material from the site, upon written approval of the Engineer,
- c. Use the material for temporary construction on site, or
- d. Use the material as intended by the terms of the Contract.

Request the Engineer's approval prior to exercising option a., b., or c.

Should the Engineer approve the Contractor's request to exercise option a., b., or c., the Contractor will be paid for the excavation or removal of the material at the applicable Contract Price. The Contractor shall replace, at Contractor's expense, the removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that replacement material is needed to complete the Work. The Contractor will be charged for use of such material in the Work or removed from the site.

Should the Engineer approve the Contractor's exercise of option a., payment will be made at the applicable Contract Price, for furnishing and installing the material in accordance with requirements of the Contract Item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of Contractor's exercise of option a., b., or c.

Do not excavate, remove, or otherwise disturb materials, structures, or parts of structures that are located outside the lines, grades, or grading sections established for the Work, except where such excavation or removal is provided for in the Contract, Plans, or Specifications.

40-08 FINAL CLEANING UP. Upon completion of the Work and before acceptance and final payment will be made, remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, stumps, or portions of trees. Cut brush and woods within the limits indicated and leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily.

If material is procured or produced from a pit, quarry, or deposit that is not an active commercial source or is not naturally submerged, do the work as necessary and practical to shape, slope, trim and drain the site, including associated haul roads and adjacent areas disturbed by the Contractor's operations, so that it presents a stable, neat, trimmed appearance and water will not collect or stand therein. Comply with ordinances relating to the reclamation of the sites. In special cases, the Contractor may be authorized to procure material below the elevation of drainability by surface water flow in accordance with a plan mutually agreed to by the Contractor and the property owner and meeting with the approval of the Engineer if:

- a. The Contractor presents a written request and written evidence that the property owner has a valid and practical plan.
- b. The plan is approved by local government officials and other agencies with respect to area development.
- c. The plan complies with applicable regulations for creating or enlarging a body of impounded water for soil or water conservation, irrigation, wildlife propagation, agriculture, recreation or other purposes.
- d. the Engineer deems this creation harmonious to public interest and will not create a public nuisance or hazard.

Final Cleanup shall be incidental to the other items of the Contract, and no separate or additional compensation will be made.

SECTION 50. CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer will:

- a. Decide questions regarding quality and acceptability of materials furnished, work performed, the manner of performance, and the rate of progress of the Work.
- b. Provide interpretation of the Specifications or Plans relating to the Work, the fulfillment of the Contract on the part of the Contractor, and the rights of different Contractors on the Project.
- c. Determine the amount and quality of the several kinds of Work performed and materials furnished that are to be paid for under the Contract.

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the Contract, Plans, or Specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the Plans and Specifications but that the portion of the Work affected will, in the Engineer's opinion, result in a finished product having a level of, economy, durability, and workmanship acceptable to the Department, the Engineer will advise the Department of the determination that the affected Work be accepted and remain in place. In this event, the Engineer will document the determination and recommend to the Department a basis of acceptance that will provide for an adjustment in the Contract Price for the affected portion of the Work. The Engineer's determination and recommended Contract Price adjustments will be based on good engineering judgment and the tests or retests of the affected work as are, in the Engineer's opinion, needed. Changes in the Contract Price will be covered by Contract Change Order.

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

If the Engineer determines that noncomplying Work or materials may remain in place, the Contract Change Order for the price adjustment for each affected Pay Item will include a \$400 sum credit to the Department for administrative costs.

For the purpose of this Subsection, the term "reasonably close conformity" will not be construed as waiving the Contractor's responsibility to complete the Work in accordance with the Contract, Plans, and Specifications. The term will not be construed as waiving the Engineer's right to insist on strict compliance with the requirements of the Contract, Plans, and Specifications during the prosecution of the Work, when, in the Engineer's opinion, compliance is essential to provide an acceptable finished portion of the Work.

For the purpose of this Subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority to use good engineering judgment when determining acceptance of Work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the Contract, Plans, and Specifications.

NOTE TO SPECIFIER:

For AIP contracts, the sponsor should keep the FAA advised of the Engineer's determinations as to acceptance of work that is not in reasonably close conformity to the contract, plans, and specifications. Change Orders must bear the written approval of the FAA.

50-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. These Specifications, Supplemental Specifications, Plans, Special Provisions, Addenda and all supplemental documents are essential parts of the Contract, and a requirement in one document is as binding as though occurring in all. They are intended to be cooperative, to describe and provide for a complete Work. In the event of a discrepancy between a drawing and the figured dimensions thereon, the figured dimensions, unless obviously incorrect, will govern over scaled dimensions. In the case of a discrepancy between the Supplemental Specifications and these Specifications, the Supplemental Specifications will govern. If a discrepancy occurs between the Plans and these Specifications, or the Supplemental Specifications, the Plans will govern. If there is a discrepancy between the Special Provisions and these Specifications, Supplemental Specifications or the Plans, the Special Provisions will govern. In the event of a discrepancy in the Plans between the standard detail drawings and the typical sections or details, the typical sections or details will govern; and between the Special Provisions and the Addenda, the Addenda will govern.

Do not take advantage of apparent errors or omissions on the Plans or Specifications. In the event an apparent error or discrepancy is discovered, immediately call the Engineer for an interpretation and a final decision.

NOTE TO SPECIFIER:

A full time Contractor's Superintendent may be required for certain projects. A Special Provision requiring the Superintendent be on site, and provided for liquidated damages may be added to the Contract.

50-04 COOPERATION OF CONTRACTOR. Two copies of the Plans and Specifications will be supplied to the Contractor. Have on the Work at all times one copy each of the Plans and Specifications. Additional copies of Plans and Specifications may be obtained for the cost of reproduction.

Give constant attention to the Work to facilitate progress and cooperate with the Engineer and Inspectors and with other contractors in every way possible. In case of conflicts in schedule or operations, resolve schedules and operations in a mutually acceptable manner, which will result in the Work on each Contract being constructed in accordance with Plans and Specifications. Have a competent superintendent on the Work at all times who is fully authorized as the Contractor's agent on the Work. The superintendent shall be capable of reading and thoroughly understanding the Plans and Specifications and shall receive and fulfill instructions from the Engineer or the Engineer's authorized representative.

50-05 COOPERATION BETWEEN CONTRACTORS. The Department or Sponsor reserves the right to contract for and perform other or additional work on or near the Work covered by this Contract.

Arrange and conduct work so as not to interfere with the operation of other contractors, subcontractors, or the public engaged upon or near the Work. Perform the Work in the proper sequence in relation to that of other contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their respective Contract and shall protect and save harmless the Department from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by them because of the presence and operations of other Contractors working within the limits of the same project. The Contractor will be held responsible for damage done by them or their agents to the work performed by another contractor. Each Contractor shall conduct their operations and maintain the Work in a condition that adequate drainage will be in effect at all times.

Arrange Work and place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same Project. Work shall join with work of others and perform it in proper sequence to that of the others.

50-06 CONSTRUCTION LAYOUT AND STAKES.

The Engineer will:

- a. Furnish and set construction survey stakes for reference points, slope intercepts, subgrade shoulder points, and reference lines to establish the alignment, slopes, and continuous profile-grade for the Work.
- b. Establish bench marks and set the stakes or reference points deemed necessary to establish the location, alignment, and elevation for structures.

These stakes and marks will constitute the field control by and in accordance with which the Contractor shall govern and execute the Work.

The Contractor shall:

- a. Govern and execute the Work.
- b. Furnish, at Contractor's expense, such other facilities and labor required by the Engineer in establishing the points and lines necessary to the prosecution of the Work after the Work is started.
- c. Furnish free of charge all additional stakes and other material necessary for marking and maintaining the points and lines given.
- d. Set and be responsible for all additional stakes or markings needed to facilitate layout or construction of the Work.
- e. Be responsible for the preservation of all stakes and marks. If any of the surface stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost to the Department of replacing them may be charged against the Contractor and will be deducted from the payment of the Work.

50-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the Contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the Contract.

50-08 PLANS AND DRAWINGS. Supplement the approved Plans with shop or working drawings and computations as are necessary to adequately control the Work. Make no changes to the approved Plans except by direction of the Engineer. It is mutually agreed that all changes of the approved Plans will be in writing.

Furnish shop or working drawings that consist of detailed plans and computations as may be required for the prosecution of the Work and which are not included in the Plans furnished by the Engineer. These drawings will be subject to review by the Engineer. Plans for temporary structures, cribs, cofferdams, falsework, shoring, centering, and form work may also be required and in these cases will be signed and sealed by a registered professional engineer and may likewise be subject to review.

It is expressly understood that review by the Engineer of the Contractor's plans, shop or working drawings does not relieve the Contractor of responsibility for obtaining satisfactory results or for accuracy of dimensions and details or for conformity of the drawings with the approved Plans and Specifications.

The Contract Price shall include the cost of furnishing all working drawings, and the Contractor will be allowed no extra compensation for these.

50-09 AUTHORITY AND DUTIES OF RESIDENT ENGINEER. The Resident Engineer is the representative of the Engineer. The Resident Engineer has the authority to reject defective material, prohibit the use of inadequate or defective equipment, and to temporarily suspend Work that is being improperly performed.

50-10 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Engineer will be authorized to inspect all work done and all material furnished. An inspection may extend to all parts of the Work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the Contract. Inspectors are not authorized to issue instructions contrary to the Plans and Specifications or to act as foreman for the Contractor.

Inspectors employed by the Department are authorized to notify the Contractor of failure of the Work or materials to conform to the requirements of the Contract, Plans, or Specifications and to reject nonconforming materials in question until the issues can be referred to the Engineer.

50-11 INSPECTION OF THE WORK. All materials and each part or detail of the Work is subject to inspection by the Engineer. The Engineer is allowed access to all parts of the Work and shall be furnished with information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, at any time before acceptance of the Work, remove or uncover portions of the finished Work as directed. After examination, restore those portions of the Work to the standard required by the Specifications. Should this exposed or examined Work prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as Extra Work. Should this exposed or examined Work prove unacceptable, the uncovering, or removing and replacing of the covering or making good of the parts removed will be at the Contractor's expense.

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

Should the Work include relocation, adjustment, or any other modification to existing facilities, not the property of the Sponsor, authorized representatives of the owners of such facilities will have the right to inspect this Work. The inspection will not make any facility owner a party to the Contract, and will in not interfere with the rights of the parties to this Contract.

50-12 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. As provided in Subsection 50-02, Conformity with Plans and Specifications, all Work which does not conform to the requirements of the Contract, Plans, and Specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer

In accordance with the provisions of the Subsection 70-14, Contractor's Responsibility for Work, remove immediately and replace in an acceptable manner unacceptable Work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the Work. Work that has been done contrary to the instructions of the Engineer, Work that has been done beyond the lines shown on the Plans or as given, except as herein specified, or Extra Work that has been done without authority, will be considered unauthorized and will not be paid for under the provisions of the Contract. If the Work is done it may be ordered removed or replaced at the Contractor's expense.

Upon failure to comply promptly with orders of the Engineer made under the provisions of this Subsection, the Engineer will have authority to cause unacceptable Work to be remedied or removed and replaced, unauthorized Work to be removed, and to deduct the costs (incurred by the Department) from moneys due or to become due the Contractor.

50-13 LOAD RESTRICTIONS. Comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the Work. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

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

Notify the Engineer in writing at least 48 hours in advance of contemplated hauling of materials required for the Work over public roads or streets that are not a part of the State Trunk Highway System.

50-14 MAINTENANCE DURING CONSTRUCTION. Maintain the Work during construction and until the Work is accepted. This maintenance constitutes continuous and effective work prosecuted day by day, with adequate equipment and forces so that the Work is maintained in satisfactory condition at all times.

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

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

50-15 FAILURE TO MAINTAIN THE WORK. Should the Contractor fail to maintain the Work as provided in Subsection 50-14, Maintenance During Construction, the Engineer will immediately notify the Contractor of noncompliance. The notification will specify a reasonable time within which the Contractor will be required to remedy the unsatisfactory maintenance condition. The time specified will give due consideration to the urgency that exists.

Should the Contractor fail to respond to the Engineer's notification, the Engineer may suspend Work as necessary for the Department to correct the unsatisfactory maintenance condition, depending on the urgency exists. Maintenance costs incurred by the Department will be deducted from moneys due or to become due the Contractor.

50-16 PARTIAL ACCEPTANCE. If at any time during the prosecution of the Project the Contractor substantially completes a usable unit or portion of the Work, the occupancy of which will benefit the Sponsor, the Contractor may request the Engineer to make inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the Contract, the Engineer may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Sponsor will not void or alter any provision of the Contract.

50-17 FINAL ACCEPTANCE. Upon due notice from the Contractor of presumptive completion of the entire Project, the Engineer will make an inspection. If all construction provided for and contemplated by the Contract is found to be completed in accordance with the Contract, Plans, and Specifications, the inspection will constitute the final inspection. The Engineer will notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses Work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with and execute the instructions. Upon correction of the Work, another inspection will be made which will constitute the final inspection, provided the Work has been satisfactorily completed. In that event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

In the event that the testing of materials is incomplete at the time of final inspection and the Work is satisfactorily completed, the Engineer will give a written notice of partial acceptance, pending receipt of satisfactory test reports, whereupon a final acceptance will be given without additional inspection.

50-18 CLAIMS FOR ADJUSTMENT AND DISPUTES. Notify the Engineer in writing of intentions to claim additional compensation for Work or materials not clearly provided for in the Contract, Plans, or Specifications or previously authorized as Extra Work before beginning the work on which the claim is based. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive claims for such additional compensation. This notice by the Contractor and the fact that the Engineer has kept account of the cost of the Work will not be construed as proving or substantiating the validity of the claim. When the Work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the Engineer who will present it to the Department for consideration in accordance with State and local laws or ordinances.

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

50-19 COST REDUCTION INCENTIVE. The provisions of this Subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original Contract amounts in excess of \$100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the Plans, Specifications or other requirements of the Contract for the sole purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision will not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, submit the following information with each proposal:

- a. A description of both existing Contract requirements for performing the Work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;
- b. An itemization of the Contract requirements that must be changed if the proposal is adopted;
- c. A detailed estimate of the cost of performing the Work under the existing Contract and under the proposed changes;
- d. A statement of the time by which a Change Order adopting the proposal must be issued;
- e. A statement of the effect adoption of the proposal will have on the time for completion of the Contract; and
- f. The Contract Items of Work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this Subsection will not be construed to require the Engineer to consider any cost reduction proposal that may be submitted.

Continue to perform the Work in accordance with the requirements of the Contract until a Change Order incorporating the cost reduction proposal has been issued. If a Change Order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made, or another date as the Contractor may subsequently have requested in writing, the cost reduction proposal will be deemed rejected.

The Engineer will be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of the proposal. In determining the estimated net savings, the Engineer may disregard the Contract Bid Prices if, in the Engineer's judgment the prices do not represent a fair measure of the value of the Work to be performed or deleted.

The Department may require the Contractor to share in the Department's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering the proposal. Where this condition is imposed, acknowledge acceptance of it in writing. This acceptance constitutes full authority for the Department to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the Contract.

If the Contractor's cost reduction proposal is accepted in whole or in part, the acceptance will be by a Contract Change Order that will specifically state that it is executed pursuant to this Subsection. This Change Order will:

- a. Incorporate the changes in the Plans and Specifications that are necessary to permit the cost reduction proposal or the part of it that has been accepted and shall include any conditions upon which the Engineer's approval is based.
- b. Set forth the estimated net savings attributable to the cost reduction proposal. The net savings will be determined as the difference in costs between the original Contract costs for the involved Work Items and the costs occurring as a result of the proposed change.
- c. Establish the net savings agreed upon and will provide for adjustment in the Contract Price that will divide the net savings equally between the Contractor and the Department.

The Contractor's 50 percent share of the net savings constitutes compensation to the Contractor for the cost reduction proposal and the performance of the Work.

Acceptance of the cost reduction proposal and performance of the cost reduction work will not extend the time of completion of the Contract unless specifically provided for in the Contract Change Order.

NOTE TO SPECIFIER:

Use of this Subsection in project specifications is the normal practice of the Bureau.

Delete the Specification by Special Provision if the project does not lend itself to value engineering.

SECTION 60. CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on the Work shall conform to the requirements of the Contract, Plans, and Specifications. Unless otherwise specified, materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the Work. Furnish these statements promptly after execution of the Contract and, in all cases, prior to delivery of the materials.

Only previously tested and approved materials shall be incorporated in the Work. However, some manufactured products (normally used in large quantities immediately upon, or soon after, delivery to the Project) may, with permission of the Engineer, be incorporated in the Work before they have been tested when they are furnished from sources deemed by the Engineer to have a proven record of furnishing materials complying with specification requirements. The permitted use of an untested material shall not, however, be construed as implied approval of the material, and its use will be at the Contractor's risk, pending completion of subsequent tests made on representative samples of the material.

Fabricated materials obtained from commercial sources and the manufacturer and supplier will, at the Engineer's discretion, be subject to the Engineer's approval before delivery of the material to the job site. Furthermore, the Contractor may be required to obtain material from another approved source, if it is determined that the product of a manufacturer or supplier is not of satisfactory uniformity or consistent quality.

In the case of materials obtained or produced from natural deposits, either commercially or by the Contractor, obtain the Engineer's preliminary approval of the source.

Furnish samples as required, representative of the material proposed for the Work, in sufficient time to permit testing to establish a basis for approval. Obtain the samples under the observation of, and with methods approved by the Engineer.

Tests will be made on these preliminary samples and reports rendered, but it is to be understood that such tests are for information only and that any preliminary approval will not be construed as a guaranty of acceptance of material that may be delivered later for incorporation into the Work.

Only the materials actually delivered for the Work will be evaluated, and their acceptance or rejection will be based solely on the results of the tests prescribed in the Specifications.

The Contractor will assume full responsibility for the production of uniform and satisfactory materials from local deposits, and will indemnify and save harmless the Department and Sponsor from any and all claims for loss or damages resulting from the opening and operation thereof, or from the failure of the deposit after development to produce acceptable materials.

Unless otherwise provided in the Contract and when all other factors are substantially equal, furnish materials that are manufactured to the greatest extent in the United States. The determination of the conformance of the materials with this requirement will be in accordance with the provisions of Section 16.754 of the Wisconsin Statutes.

Furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the Plans or Specifications, furnish equipment that is:

- a. In accordance with FAA Advisory Circular (AC) 150/5345-53, Appendix 3, Approved Airport Equipment, that is in effect on the date of advertisement; and,
- b. Produced by the manufacturer qualified to produce such specified and listed equipment.

Furnish airport lighting equipment required for this Contract in accordance with requirements of the Specifications.

NOTE TO SPECIFIER:

To avoid errors, the design Engineer should furnish a listing of those specifications cited on the plans or in the special provisions. Both the individual FAA material specifications and the AC 150/5345-1, Approved Airport Equipment, should be listed to indicate the edition that is effective on the date the contract is advertised.

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. All materials used in the Work will be subject to inspection, testing, and approval by the Engineer before incorporation in the Work. Work in which untested materials are used without approval or written permission of the Engineer will be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, removed at the Contractor's expense.

To ascertain if materials comply with Contract requirements, samples will, at the discretion of the Engineer, be taken at the source or at the job destination, as often as the Engineer deems it advisable or necessary. Sampling will be in accordance with the standard practices of the Department, except where methods and procedures for sampling a material are otherwise set forth in the Specifications.

Furnish all samples required by the Engineer without charge and afford any facilities as may be required for collecting and forwarding them.

When requested by the Engineer, furnish a written statement giving the origin, composition or process of manufacture of a material.

In the case of manufactured products or assemblies the Engineer may, at his discretion, accept the manufacturer's Certified Report of Test or Analysis or a Certificate of Compliance instead of performing tests on samples. The kind of document required will be designated elsewhere in these Specifications for the specific material involved. The Engineer will specify the number of copies of each document. The samples for the tests or analyses reported on, in the Certified Report of Test or Analysis, may be:

- a. those normally obtained in a formal product quality control program,
- b. obtained to represent the specific lot of material furnished when no formal control program is in effect, or,
- c. those required to be obtained by the Specifications.

Unless otherwise provided in the Contract, it is the intent of these Specifications that conformity of materials to the specified requirements will be at the time, or just prior to the time, they are incorporated in the Work.

All tests will be made in accordance with the methods described and designated herein or in the Contract Documents. References to:

- a. ASTM Specifications will be understood to mean the Standards or Tentative Standards of the American Society for Testing and Materials.
- b. AREA Specifications will be understood to mean the specifications contained in the American Railway Engineering Association's Manual.
- c. AASHTO Specifications will be understood to mean the Standard or Interim Specifications for Transportation Materials and Methods of Sampling and Testing of the American Association of State Highway and Transportation Officials.

Unless otherwise designated, references to various standard specifications and test methods mean the specification or test method that is current on the date of the initial Advertisement for Bids.

The Department has on file copies of the above specifications that may be examined by Contractors, Bidders, or the suppliers of materials; however, the Department will not furnish copies.

Tests performed by the Department are intended to provide a basis for acceptance of materials and workmanship. Conduct additional tests for quality assurance. Determine quality control testing requirements unless specific requirements from Section 100 and the technical specifications apply. Test results obtained on samples of materials furnished by the Contractor will be available to the Contractor.

The Department reserves the right to deduct from moneys that are due or may become due the Contractor costs incurred in the sampling and testing of materials not used under the Contract.

60-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's Certificates of Compliance stating that the materials or assemblies fully comply with the requirements of the Contract. The certificate will be signed by the manufacturer. Each lot of these materials or assemblies delivered to the Work must be accompanied by a Certificate of Compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of Certificates of Compliance may be sampled and tested at any time and if found not to conform with Contract requirements will be subject to rejection whether in place or not.

The form and distribution of Certificates of Compliance will be as approved by the Engineer.

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

- a. Conformance to the specified performance, testing, quality, or dimensional requirements; and,
- b. Suitability of the material or assembly for the use intended in the Contract Work.

Should the Contractor propose to furnish an "or equal" material or assembly, they will furnish the manufacturer's Certificates of Compliance as described for the specified brand name material or assembly. However, the Engineer will be the sole judge as to whether the proposed "or equal" is suitable for use in the Work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of Certificates of Compliance.

NOTE TO SPECIFIER:

When it is necessary to specify a material or assembly by brand names or equal, the technical requirements (performance, testing, quality, or dimensions) must be accurately described in enough detail to ensure a suitable product while not restricting competition unduly. An alternative would be to list two or three brand names or equal.

60-04 PLANT INSPECTION. The Engineer or an authorized representative may inspect, at its source, specified materials or assemblies to be used in the Work. Manufacturing plants may be inspected periodically to determine compliance with specified manufacturing methods or materials to be used in the Work and to obtain samples required for acceptance of the materials or assemblies.

Should the Engineer conduct plant inspections, the following conditions shall exist:

- a. The Engineer will have the cooperation and assistance of the Contractor and the producer with whom the Engineer has contracted for materials.
- b. The Engineer will have full entry at all reasonable times to parts of the plant that concern the manufacture or production of the materials being furnished.
- c. If required by the Engineer, arrange for adequate office or working space that may be needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.
- d. Give the Engineer sufficient advance notice of production schedules to permit making necessary arrangements.

It is understood and agreed that the Department has the right to retest material that has been tested and approved at the source of supply after it has been delivered to the site. The Engineer has the right to reject only material that, when retested, does not meet the requirements of the Contract, Plans, or Specifications.

60-05 ENGINEER'S FIELD OFFICE AND LABORATORY. When specified and provided for as a Contract Item, furnish a facility on site for the exclusive use of the Engineer as a field office and field testing laboratory. Furnish and maintain the facility as specified. It will become the property of the Contractor when the Contract Work is completed.

NOTE TO SPECIFIER:

Requirements for specifying the Engineer's field office and laboratory should be coordinated with the Department and the Engineer since such facilities are not needed for all airport construction projects. A Specification and Pay Item for field office and laboratory are included in the Specifications.

60-06 STORAGE OF MATERIALS. Store materials to assure preservation of their quality and suitability for the Work. Stored materials, even though approved before storage, may again be inspected prior to their use in the Work. Locate stored materials to facilitate their prompt inspection. Coordinate the storage of materials with the Engineer. Materials to be stored on Airport property shall not create an obstruction to air navigation nor interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the Plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles will be approved by the Engineer. Private property will not be used for storage purposes without written permission of the owner or lessee of such property. Make all arrangements and bear all expenses for the storage of materials on private property. Upon request, furnish the Engineer a copy of the property owner's permission.

Restore storage sites on private or Airport property to their original condition at Contractor's expense, except as otherwise agreed upon in writing by the owner or lessee of the property.

60-07 UNACCEPTABLE MATERIALS. Materials or assemblies that do not conform to the requirements of the Contract, Plans, or Specifications will be considered unacceptable and rejected. Remove rejected materials or assemblies from the site of the Work, unless otherwise instructed by the Engineer.

No rejected material or assembly, the defects of which have been corrected by the Contractor, will be returned to the site of the Work until the Engineer has approved it's used in the Work.

60-08 SPONSOR FURNISHED MATERIALS. Furnish all materials required to complete the Work, except those specified herein (if any) to be furnished by the Sponsor. Sponsor-furnished materials shall be made available to the Contractor at the location specified.

Include all costs of handling, transportation from the specified location to the Work site, storage, and installing Sponsor–furnished materials in the unit price bid for the Contract Item in which such Sponsor–furnished material is used.

After Sponsor–furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Sponsor–furnished material. The Department will deduct from any moneys due or to become due the Contractor costs incurred by the Department or Sponsor in making good such loss due to the Contractor's handling, storage, or use of Sponsor–furnished materials.

60–09 CORRECTION OF WORK AFTER PAYMENT. The final payment nor any provision in the Contract Documents will not relieve the Contractor of the responsibility for negligence of faulty materials or workmanship within the extent and period provided by law. Upon written notice remove defects due and pay for damage to other resulting work that shall appear within 1 year after date of completion and acceptance.

SECTION 70. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 LAWS TO BE OBSERVED. Stay fully informed of all Federal, State, and local laws, ordinances and regulations, and all orders and decrees of bodies having jurisdiction or authority, which affect those engaged or employed on the Work, or which affect the conduct of the Work. Observe and comply with all the laws, ordinances, regulations, orders, and decrees; and protect and indemnify the Department and the Department's officers, agents, or servants against all claims or liability arising from or based on the violation of the law, ordinance, regulation, order, or decree, whether by Contractor or Contractor's employees. Regulate, in accordance with the provisions of the Wisconsin Statutes, the movement of vehicles or equipment which is necessary for the prosecution of the Work, over public highways to the Project

70-02 PERMITS, LICENSES, AND TAXES. Procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the Work. Comply with all permit requirements, whether the permit is issued to the Contractor, the State, or the maintaining authority.

70-03 PATENTED DEVICES, MATERIALS, AND PROCESSES. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, they shall provide for its use by suitable legal agreement with the patentee or owner. The Contractor and the Surety will indemnify and save harmless the Department, Sponsor, any third party, or political subdivision from all claims for infringement by reason of the use of the patented design, device, material or process, or any trademark or copyright, and will indemnify the Department for any costs, expenses, and damages that it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the Work.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Department reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the Work. To the extent that this construction, reconstruction, or maintenance has been coordinated with the Department, this authorized work (by others) is indicated in the Special Provisions.

Except as provided in the Special Provisions, do not permit any individual, firm, or corporation to excavate or otherwise disturb the utility services or facilities located within the limits of the Work without the written permission of the Engineer.

Should the owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain the utility service or facility during the progress of the Work, cooperate with the owners by arranging and performing the Work in this Contract so as to facilitate the construction, reconstruction or maintenance by others, whether or not the work by others is listed above. When ordered as Extra Work by the Engineer, make all necessary repairs to the Work that are due to the authorized work by others, unless otherwise provided for in the Contract, Plans, or Specifications. It is understood and agreed that the Contractor cannot make any claim for damages due to the authorized work by others or for any delay to the Work resulting from this authorized work.

NOTE TO SPECIFIER:

It is the intention of this subsection to provide for both foreseen and unforeseen work by owners of utility services and other facilities on the airport. Such owners have legal rights and obligations under some form of easement with the airport owner. Every effort should be made, during the initial design phase, to coordinate the proposed contract work with such owners so that their rights and obligations are provided for in the contract, plans, and specifications. Where there is conflict between an existing utility service (or facility) and the proposed work or where the owner of the utility or facility must perform work to construct, reconstruct, or maintain his/her utility or facility, such work should be identified in the special provision and provided for in the contract, plans and specifications. In addition, all known utility services or facilities that are within the limits of the proposed work should be shown on the plans (regardless of whether or not there is a conflict of work to be performed by the owner) with enough detailed information to indicate the lack of conflicts.

70-05 FEDERAL AID PARTICIPATION. For AIP contracts, the United States Government has agreed to reimburse the Department for some portion of the Contract costs. In consideration of the United States Government's (FAA's) agreement with the Department, the Department has included provisions in this Contract pursuant to the requirements of the Airport Improvement Act of 1982, as amended by the Airport and Airway Safety and Capacity Expansion Act of 1987 and Subsequent Acts, and the Rules and Regulations of the FAA that pertain to the Work.

As required by the Act, the Contract Work is subject to the inspection and approval of duly authorized representatives of the Administrator, FAA, and is further subject to those provisions of the rules and regulations that are cited in the Contract, Plans, or Specifications.

No requirement of the Act, the rules and regulations implementing the Act, or this Contract will be construed as making the Federal Government a party to the Contract nor will any such requirement interfere, in any way, with the rights of either party to the Contract.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. Provide and maintain in a neat, sanitary condition accommodations for the use of Contractor's employees as necessary to comply with the requirements and regulations of the State or local Department of Health, or of other agencies having jurisdiction.

Attention is directed to Federal, State, and local laws, rules and regulations concerning construction safety and health standards. Do not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to health or safety.

70-07 PUBLIC CONVENIENCE AND SAFETY. Control construction operations and those of subcontractors and all suppliers to assure the least inconvenience to the traveling public. Under all circumstances, safety is the most important consideration.

Equip vehicles with tailgates and adequate sideboards that will be traveling on public roads or streets hauling materials to, from, or on the Work that are subject to spillage, due either to wind or vibration. Use covers and other protective devices as necessary to prevent spillage.

Remove immediately debris or spillage falling on the traveled way that interferes with or creates a hazard for traffic.

When Work involves excavation adjacent to any building or wall along the Work, give property owners due and sufficient notice. The Contractor and their Surety will hold the State and the municipality in which the Work is done harmless from any damage to the building or wall resulting from the loss of lateral support or from other causes.

Do not operate motorized construction equipment from 10 p.m. until 6 a.m. of the following day, without prior written approval of the Engineer.

Maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to construction operations and those of subcontractors and all suppliers in accordance with Subsection 40-05, Maintenance of Traffic, and limit these operations for the convenience and safety of the traveling public as specified in Subsection 80-04, Limitations of Operations.

70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. Furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the Work. When used during periods of darkness, suitably illuminate such barricades, warning signs, and hazard markings.

For vehicular and pedestrian traffic, furnish, erect, and maintain barricades, warning signs, lights, and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

When the Work requires closing an air operations area of the Airport or portion of the area, furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of FAA Advisory Circular, Standards For Airport Marking, latest version.

Furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the Airport in reasonable conformance to provisions contained in the Plans and Specifications.

Identify each motorized vehicle or piece of construction equipment in reasonable conformance with requirements contained on the Construction Operations Sheet of the Plans or the Special Provisions.

Furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work. Maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights are not permitted within the air operations areas of the Airport.

NOTE TO SPECIFIER:

To ensure that the contract contains current information as to barricades and warning signs, marking of paved areas on airports, and safety on airports during construction, the latest editions of the cited publications should be reviewed. The provisions of the cited publications (AC 150/5370-2) that are applicable should be included in the Construction Operations Sheet of the Plans or in the Special Provisions.

70-09 USE OF EXPLOSIVES. When the use of explosives is necessary for the prosecution of the Work, exercise the utmost care not to endanger life or property, including new Work. The Contractor will be responsible for all damage resulting from the use of explosives.

Store all explosives securely and comply with all laws and ordinances. Mark clearly all of these storage places. The methods of use, storing, and handling of explosives and highly flammable materials shall conform with all State and local laws and regulations, including the rules of the Department of Workforce Development.

Notify each property owner and public utility company having structures or facilities in proximity to the site of the Work of the schedule for use of explosives. Give adequate, prior notice to enable them to take such steps as they may deem necessary to protect their property from injury.

The use of electrical blasting caps is not be permitted on or within 1,000 feet (300 m) of the Airport property.

70-10 PROTECTION AND RESTORATION OF PROPERTY AND PROPERTY MARKS. Notify, in writing, the owners of all corporate or private property that interferes with the Work, advising them of the nature of the interference, and arrange with them for the disposition of the property. Upon request, provide the Engineer with copies of all these notifications and final agreements.

Use every reasonable precaution to prevent damage to or destruction of public or private property such as:

- a. poles, trees, shrubbery, crops and fences adjacent to or interfering with the Work;
- b. all overhead structures such as wires and cables;
- c. all underground structures such as water or gas shut-off boxes, water meters, pipes, conduits, and utilities.

Protect and carefully preserve all known property, survey marks, and land monuments. Notify the Engineer of the nature and location of these markers. Do not disturb or destroy these markers until the Engineer has arranged for their referencing or perpetuation.

The Contractor is responsible for the damage or destruction of property resulting from neglect, misconduct, or omission in the manner or method of execution or non-execution of the Work, or caused by defective work or the use of unacceptable materials. The Contractor shall restore the property to a condition similar or equal to that existing before damage or injury was done, by repairing, rebuilding, or replacing it as may be directed, or they will otherwise make compensation for such damage or destruction. If they fail to do so, the Engineer may, after the expiration of a period of 48 hours after giving notice to the Contractor in writing, proceed to repair, rebuild or otherwise restore the property as may be deemed necessary. The cost will be deducted from any compensation due or which may become due the Contractor under their Contract.

The Contractor shall be liable for all damages caused by fires and will under no consideration start fires without first securing the necessary permits and the approval of the Department of Natural Resources Area Forest Ranger, Town Fire Warden, Town Chairman, or other authority having jurisdiction even though they may be ordered or required to do the burning. Burning shall comply with Sections NR154 and NR155 of the Wisconsin Administrative Code and any applicable City, Township, County, Regional, State, or Federal Ordinances. In burning brush, stumps, or rubbish, take care not to damage any standing trees, shrubs, or other property.

70-11 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify and save harmless the State, the Sponsor, and the Engineer and their officers, agents, employees, and other authorized representative from the following:

- a. all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor;
- b. on account of or in consequence of neglect in safeguarding the Work;
- c. through use of unacceptable materials in constructing the Work;
- d. because of acts of omission, neglect, or misconduct of said Contractor;
- e. because of claims or amounts recovered from any infringements of patent, trademark, or copyright;
- f. from claims or amounts arising or recovered under the "Workmen's Compensation Act," or other laws, ordinances, orders, or decrees.

Money due the Contractor under and by virtue of the Contract as may be considered necessary by the Department for that purpose may be retained for the use by the Department or, in case no money is due, Contractor's Surety may be held until the suit or suits, action or actions, claim or claims for injuries or damages as aforesaid have been settled and suitable evidence to that effect furnished to the Department, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that they are adequately protected by public liability and property damage insurance.

The identification obligations of the Contractor under this subsection shall not extend to the liability of the Engineering consultant, officers, directors, employees or agents caused by professional negligence, errors, or omissions of any of them.

Provide and maintain during the effective life of the Contract, public liability and property damage liability insurance. This insurance shall provide protection to the Contractor and their construction subcontractors from claims for damages due to personal injury, accidental death, and damage to property, which may arise from operations under the Contract, whether these operations be by anyone directly or indirectly employed by either of them.

Do not begin Work under this Contract until insurance coverage is obtained as specified hereafter. The insurance coverage specified will be maintained for the life of the Contract, as

- a. Unemployment and Social Security, as required by current Federal and State laws.
- b. Worker's Compensation Insurance, as required by Wisconsin statutes.
- c. Employer's Liability Insurance. Not less than \$100,000 coverage for each occurrence.
- d. Public Liability and Property Damage Insurance. The Contractor will as a minimum provide the following coverage for the performance of Work under this Contract by their own forces or those of any subcontractor.
 - (1) Damages for personal injury, including accidental death.
 - (2) Property damages that may arise from operations under this Contract.
 - (3) Comprehensive General Liability coverage for:
 - (a) Premises and operations
 - (b) Independent contractors (subcontractors)
 - (c) Completed operations during construction and for 1 year after final acceptance of the project.
 - (d) Contractual coverage per Subsection 70-11, Responsibility for Damage Claims
 - (4) Broad Form Property Damage coverage shall have the "XCU" Exclusions removed (explosions, collapse, underground property damage) on all contracts except pavement marking work.
 - (5) Limits of Liability:

Public Liability (Bodily Injury)	
Each Occurrence	\$250,000
Aggregate	\$500,000
Property Damage	
Each Occurrence	\$100,000
Aggregate	\$300,000
 - (6) Vehicle Liability and Property Damage, including coverage for owned, hired, and non-owned vehicles.

Bodily Injury	
Each Person	\$250,000
Each Occurrence	\$500,000
Property Damage	
Each Occurrence	\$100,000
 - (7) Umbrella or Excess Liability Insurance in the amount of \$4,000,000 will be required above the Contractor's basic policy (follow through form).
- e. Certificate of Insurance. A certificate of insurance will be submitted to the Department upon execution of the Contract and will contain:
 - (1) Title and location of property or project covered.
 - (2) Policy numbers, date of expiration, terms, limits, and types of coverages.
 - (3) A notice of cancellation clause stating that the insurance company will notify the Department, in writing, 30 days prior to cancellation of the policy.

f. Suspension of Work. In the event insurance coverage is canceled, expires, or is found to be inadequate, suspend all Work under this Contract until evidence of adequate coverage is obtained. Construction time lost due to insufficient insurance will not be eligible for Contract time extension.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the Contract that it is not intended by any of the provisions of any part of the Contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the Contract.

The State will not be liable to the Contractor for damages or delays resulting from work by third parties. The State will also be exempt from liability to the Contractor for damages or delays resulting from injunctions or other restraining orders obtained by third parties except where the damage or delay is a direct result of an injunction or restraining order obtained by a citizen's action alleging violations of 42 U.S.C. 4331-4332, 23 U.S.C. 138 or Public Law 91-646.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary to complete portions of the Contract Work for the beneficial occupancy of the Sponsor prior to completion of the entire Contract, the "phasing" of the Work will be specified and indicated on the Plans. When so specified, complete those portions of the Work on or before the date specified, or as otherwise specified. Make an estimate of the difficulties involved in arranging the Work to permit the beneficial occupancy by the Sponsor as indicated on the Plans.

NOTE TO SPECIFIER:

The Sponsor's requirements for "phasing" the work should be coordinated with certain agencies having an interest in operational capability of the airport. Such coordination must be accomplished at the earliest possible time. See AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects, for more information. Phasing should be shown on the Construction Operations Sheet.

Upon completion of any portion of the Work listed above, that portion will be accepted by the Department in accordance with Subsection 50-16, Partial Acceptance.

Do not open any portion of the Work for public use until Engineer provides a written order. If it becomes necessary to open a portion of the Work to public traffic on a temporary or intermittent basis, those openings will be made when, in the opinion of the Engineer, that portion of the Work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the Work and will constitute either acceptance of the portion of the Work so opened or a waiver of any provision of the Contract. Damage to the portion of the Work so opened that is not attributable to traffic which is permitted by the Department will be repaired by the Contractor at no cost to the Department.

Make an estimate of the inherent difficulties involved in completing the Work under the conditions described. Do not claim any added compensation by reason of delay or increased cost due to opening a portion of the Contract Work.

70-14 CONTRACTOR'S RESPONSIBILITY FOR WORK. Until the Engineer's final written acceptance of the entire completed Work, excepting only those portions of the Work accepted in accordance with Subsection 50-16, Partial Acceptance, the Contractor has the charge and care thereof and shall:

a. Take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the Work.

b. Rebuild, repair, restore, and make good all injuries or damages to any portion of the Work occasioned by any of the above causes before final acceptance.

c. Bear the expense thereof, except damage to the Work due to unforeseeable causes beyond the control of and without fault or negligence, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the Work is suspended for any cause whatever, the Contractor will be responsible for the Work and will take such precautions necessary to prevent damage to the Work. Provide for normal drainage and erect necessary temporary structures, signs, or other facilities. During such period of suspension of Work, properly and continuously maintain, in an acceptable growing condition, all living material in newly established planting, seedings, and soddings furnished under the Contract. Take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in Subsection 70-4, Restoration of Surfaces Disturbed by Others, cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Sponsor to construct, reconstruct or maintain the utility services or facilities during the progress of the Work. In addition, control construction operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that these public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the Contract Work, the approximate locations have been indicated on the Plans and the owners are indicated on the Plans or in the Special Provisions.

NOTE TO SPECIFIER:

It is intended that the plans will show the approximate location of the utilities or facilities known to exist within the limits of the Contract Work. It is also intended that the proposed Contract Plans and Specifications be coordinated with the various owners at the earliest possible time to avoid overlooking utility conflicts in the design and to obtain the best possible information needed to protect such utility services or facilities from damage resulting from the Contractor's operations. Where conflicts are indicated during the coordination, they should be resolved by the Airport Owner and the utility owner, in accordance with existing legal agreements, by providing for work in the proposed contract or by the utility owner. In such cases of conflict, regardless of how the conflict is resolved, the Airport Owner and utility owner should also be advised of the need to furnish the best information possible as to location of the utility service or facility to ensure protection during the proposed contract work. The utility name, address, telephone number, and person to contact should be on the plans or in the Special Provisions.

It is understood and agreed that the Department does not guaranty the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the Plans or encountered in the Work. Any inaccuracy or omission in this information will not relieve the Contractor of responsibility to protect these existing features from damage or unscheduled interruption of service.

It is also understood and agreed that the Contractor shall, upon execution of the Contract, notify the owners of all utility services or other facilities of Contractor's plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided in the Contract Documents. Give a copy of each notification to the Engineer.

In addition to the general written notification provided, the Contractor is responsible for keeping individual owners advised of changes in the plan of operations that would affect such owners.

Before beginning the Work in the general vicinity of an existing utility service or facility, again notify each owner of the plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility, or the presence of a representative of the owner is desirable to observe the work, include this advice in the notification. Expedite notification to reach the utility owner's PERSON TO CONTACT no later than 3 working days before beginning operations in the general vicinity. Furnish a written summary of the notification to the Engineer.

Where the outside limits of an underground utility service have been located and staked on the ground, use excavation methods acceptable to the utility within 3 feet (900 mm) of the outside limits or at a distance as required to ensure protection from damage due to the Contractor's operations.

Should damage or interruption of the operation of a utility service or facility by accident or otherwise occur, immediately notify the proper authority and the Engineer. Take all reasonable measures to prevent further damage or interruption of service. Cooperate with the utility service or facility owner and the Engineer until the damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor will bear all costs of damage and restoration of service to utility services or facilities due to Contractor's operations whether or not due to negligence or accident. The Department reserves the right to deduct these costs from any moneys due or which may become due the Contractor, or the Contractor's Surety.

70-16 FURNISHING RIGHTS-OF-WAY. The Department is responsible for furnishing all rights-of-way upon which the Work is to be constructed in advance of the Contractor's operations.

70-17 PERSONAL LIABILITY OF PUBLIC OFFICIALS. In carrying out the Contract provisions or in exercising power or authority granted by this Contract, there will be no liability upon the Department, as agent for the Sponsor, the Engineer, the Engineer's authorized representatives, or any officials of the Sponsor either personally or as an official of the Sponsor. It is understood that in such matters they act solely as agents and representatives of the Department and Sponsor.

70-18 NO WAIVER OF LEGAL RIGHTS. Upon completion of the Work, the Department will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, will not prevent or stop the Department from correcting measurements, estimates, or certificates made before or after completion of the Work, nor will the Department be prevented or estopped from recovering from the Contractor or the Contractor's Surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the Contract. A waiver on the part of the Department of any breach of the Contract will not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the Contract, will be liable to the Department and the Sponsor for potential defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Department's and the Sponsor's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. Comply with all Federal, State, and local laws and regulations controlling pollution of the environment.

Comply with the pertinent requirements of these laws relating to solid waste disposition and air pollution and control and minimize the dispersion of dust and particulate matter and other pollutants into the atmosphere. Take all necessary precautions to prevent pollution of streams, lakes, marshes, and reservoirs with fuels, oils, bitumens, calcium chloride, paint, or other harmful materials. Conduct and schedule operations so as to avoid or minimize siltation of streams, lakes, and reservoirs.

Fording of live streams will not be permitted unless the Contractor's plan for this operation meets the approval of the Engineer and results in minimum siltation to the streams. Unless otherwise approved by the Engineer, do not operate mechanized equipment in live streams except as required to construct channel changes and temporary or permanent structures.

When work areas or pits are located in or adjacent to live streams, lakes, or wetlands, separate these work areas or pits from the stream, lake, or wetland by a dike, silt fence, or other barrier to keep sediment from entering these locations. Take care during the construction and removal of these barriers to minimize the siltation or filling of the stream, lake, or wetland.

Treat water from aggregate washing or other operations containing sediment by filtration, a settling basin, or other means to reduce the sediment content to not more than that of the stream or lake into which it is discharged.

70-20 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. For the purposes of this Subsection, the term "governmental authority" will mean the U.S. Army Corps of Engineers, the U.S. Coast Guard, the Wisconsin Department of Natural Resources or other agency having jurisdiction over the navigable waters within the project limits and empowered to take the actions required by this Specification.

All Work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be impeded and existing navigable depths will not be impaired except as allowed by permit issued by the governmental authority. Do not start construction until all permits have been received.

Procure all permits required by Subsection 70-02, Permits, Licenses, and Taxes. Submit applications for U.S. Coast Guard and Wisconsin Department of Natural Resources permits to WisDNR, Bureau of Law Enforcement, Boating Law Administrator. Provide one copy of each permit to the project Engineer for posting at the field office prior to commencing construction activities that affect navigation.

All construction and related operations will be subject to such supervision by the governmental authority as is customary for operations in navigable waters, and will conform to special requirements or directions from the governmental authority.

Ascertain from the governmental authority the minimum horizontal and vertical clearance requirements for navigation during construction and maintain those clearances during the period of construction.

If the governmental authority issues directions or orders affecting the operations or order of procedure during progress of the Work, promptly file a written copy of the directions or orders with the Engineer. Should the Contractor, during the progress of the Work, lose, dump, throw overboard, sink, or misplace any material or equipment, which in the opinion of the governmental authority may interfere with or obstruct navigation, the Contractor shall promptly recover or remove the same. Give immediate notice, with descriptions and locations of such obstructions, to the governmental authority, and when required, mark or buoy these obstructions until the obstructions are removed. Should the Contractor refuse, neglect, or delay compliance with the above requirements, these obstructions may be removed by the governmental authority. The cost of the removal may be deducted from any money due or to become due to the Contractor, or may be recovered under bond deposited by the Contractor.

During construction, provide temporary lights, waterway markers, other devices, or combination thereof, as specified and required by the governmental authority.

All expenses incurred by the Contractor in connection with the maintenance of navigation will be incidental to the cost of the Contract and no additional payment will be made.

NOTE TO SPECIFIER:

For AIP contracts, the contract provisions required to mitigate the environmental consequences of the contract work should be specified in the contract specifications as required generally and specifically by the Environmental Impact Statement or Assessment Report for the particular AIP project.

70-21 EROSION CONTROL. Perform the temporary and permanent erosion control measures and the storm water management measures required by Chapter Trans 401 of the Wisconsin Administrative Code, the Plans, Specifications, and Contract Documents and as directed by the Engineer.

Coordinate temporary erosion control measures with the permanent erosion control measures to assure economical, effective, and continuous erosion control.

Prepare and submit an erosion control implementation plan (ECIP) for the project, including borrow sites and material disposal sites, in accordance with Chapter Trans 401 requirements.

The area of erosive land exposed to the elements by grubbing, excavation, borrow, or fill operations at any one time is subject to the approval of the Engineer. The duration of the exposure prior to final trimming, finishing and seeding, or application of temporary erosion control measures shall be brief.

Perform construction in and adjacent to rivers, streams, lakes, or other waterways to avoid washing, sloughing or deposition of materials into the waterways which would obstruct or impair the flow, thus endangering the Work or stream banks, or which would result in undue or avoidable contamination, pollution, or siltation of such waterways.

The Engineer has full authority to suspend or limit grading and other operations pending adequate performance of permanent erosion control measures such as finish grading, topsoiling, mulching, matting and seeding, and any temporary erosion control measures ordered by the Engineer.

Perform grubbing and grading operations in proper sequence with other work to minimize erosion. Construct intercepting ditches or dikes when practical after clearing and grubbing operations are completed and prior to or during excavating of the cuts. Where erosion is likely to be a problem, follow permanent erosion control measures immediately after the grading operations, if conditions permit, unless the Engineer authorizes temporary erosion control measures.

Temporary and permanent erosion control will be measured and paid for as provided for the various Pay Items included for the control in the Contract or as Extra Work, unless temporary erosion control is required because of the Contractor's negligence, carelessness, or failure to install permanent controls.

Except as limited by Subsections 156-4.3 and 156-5.12 for Borrow Sites and Material Disposal Sites, temporary and permanent erosion control will be measured and paid for as provided for the various items of work included for the control in the Contract, or as Extra Work, unless temporary erosion control is required because of the Contractor's negligence, carelessness, or failure to install permanent controls.

70-22 USE OF FIRE HYDRANTS. If the use of water from public hydrants is desired, apply to the proper authorities and conform to the city ordinances, rules, and regulations concerning their use.

Have Fire hydrants accessible at all times to the fire department. Do not place material or other obstructions closer to a fire hydrant than permitted by ordinances, rules, or regulations, or within 5 feet of a fire hydrant in the absence of ordinances, rules, or regulations.

70-23 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this Subsection, the site of the Work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

If any building, part of a building, structure, or object is encountered during construction operations that is incongruous with its surroundings, immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor's finding and will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Engineer order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform Extra Work, it will be covered by an appropriate Contract Change Order as provided in Subsection 40-04, Extra Work, and Subsection 90-05, Payment for Extra Work and Force Account Work. If appropriate, the Contract Modification will include an extension of Contract Time in accordance with the Subsection 80-07, Determination and Extension of Contract Time.

NOTE TO SPECIFIER:

The contract language suggested in subsection 70-23 is intended to remind owners of airports that proper planning will prevent construction delays that may be caused when objects of archaeological or historical significance are encountered in the work. Airport owners should include in their planning the coordination with state and local planning bodies as may be required by state and local laws pertaining to the National Historic Preservation Act of 1966.

As a general rule, disposition of known archaeological or historic objects that are situated on the site of the work should be covered by a separate contract when such disposition is required as a part of FAA project approval.

70-24 ANTITRUST ASSIGNMENT CLAUSE. The Contractor hereby assigns to the State any and all claims for overcharges resulting from antitrust violations as to goods and materials purchased in connection with this Contract, except as to overcharges which result from antitrust violations commencing after the price is established under this Contract and any Change Order. In addition, the Contractor warrants and represents that each of their first tier suppliers and subcontractors shall assign any and all of these claims to the State subject to the aforementioned exception.

70-25 HAZARDOUS SUBSTANCE. Whenever construction operations encounter or expose abnormal conditions that may indicate the presence of a hazardous substance, immediately discontinue the construction operations in the vicinity of the abnormal condition, and notify the Engineer. Do not resume construction operations in this area until directed by the Engineer. Work may be continued in other areas of the project unless otherwise directed by the Engineer.

Treat abnormal conditions with extreme caution. Abnormal conditions include, but are not limited to, the following:

- a. The presence of a tank or barrel.
- b. An obnoxious odor.
- c. Excessively hot earth.
- d. Smoke.
- e. Visible fumes.
- f. Discolored earth or sheen on groundwater.

Minimize the spread of the hazardous substance into an uncontaminated area.

Dispose of hazardous substances in accordance with requirements and regulations of the responsible State Agencies. Work required to dispose of a hazardous substance, and not provided for in the Contract, will be compensated as Extra Work. If special procedures are required for the disposal, the Department will arrange with qualified persons to dispose of the substance.

SECTION 80. PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The Department will not recognize any subcontractor on the Work. When Work is in progress, the Contractor shall be represented either in person, by a qualified superintendent, or by another designated, qualified representative who is duly authorized to receive and execute orders of the Engineer.

Should the Contractor elect to assign the Contract, the assignment will be concurred in by the surety, shall be presented for the consideration and approval of the Department, and will be consummated only on the written approval of the Department. In case of approval, file copies of all subcontracts with the Engineer.

Do not sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion, right, title, or interest, without written consent of the Department.

Consent to sublet any portion of the Contract shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the Contract or to release the Contractor of their liability under the Contract and Contract Bonds.

In case consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with their own organization Work amounting to at least 30 percent of the original Contract amount, except for building construction for which the Contractor must perform at least 10 percent of the original Contract amount, unless a larger portion is specified in the Contract, except that any items designated in the Contract as "specialty items" may be performed by subcontract, and the cost of any such specialty items performed may be deducted from the original Contract amount before computing the amount of Work to be sublet.

Write requests for permission to sublet any portion of the Contract. The Department may require proof that the organization that will perform the Work is particularly experienced and equipped for the Work. The Department may also require each request be accompanied by a copy of the proposed subcontract. Any subsequent change in the terms of the subcontract will be subject to separate approval.

Work by a subcontractor cannot proceed until the request for permission to sublet the Work is approved.

If the Contractor proposes to have Work performed by a person or firm other than a subcontractor, inform the Engineer in writing, if required, of the specific arrangement under which the Work will be performed so that it may be established whether or not the arrangement constitutes subcontracting.

The Engineer may also require the Contractor to submit a copy of any agreement that a subcontractor or other person or organization has with any other person or organization for performing Work under the Contract.

80-02 NOTICE TO PROCEED. The Notice to Proceed will state the date on which the Contractor will begin the construction and from which date Contract Time will be charged. Begin the Work to be performed under the Contract within 10 days of the date set by the Department in the written Notice to Proceed, and notify the Engineer at least 72 hours in advance of the time actual construction operations will begin.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, submit a progress schedule for the Engineer's approval within 10 days after the effective date of the Notice to Proceed. When approved by the Engineer, the progress schedule may be used to establish major construction operations and to check on the progress of the Work. Provide sufficient materials, equipment, and labor to guaranty the completion of the Project in accordance with the Plans and Specifications within the time set forth in the Proposal.

Prepare the schedule as a network diagram in Critical Path Method (CPM), PERT, or other format, or as otherwise specified in the Contract. As a minimum, provide information on the sequence of Work activities, milestone dates, and activity duration.

Maintain the Work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the Contract. Submission of the Work schedule will not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all Work to comply with the requirements of the Contract.

In the event Work is prosecuted during adverse weather conditions, the Contractor will be required to exercise precautions necessary to produce satisfactory Work, and shall protect the finished Work from the elements. It is agreed and understood that the cost thereof has been included in the unit prices bid for the various items of Work in the Contract and that no extra compensation will be allowed.

If the Contractor falls significantly behind the submitted schedule, upon the Engineer's request, submit a revised schedule for completion of the Work within the Contract Time and modify construction operations to provide the additional materials, equipment, and labor necessary to meet the revised schedule. Notify the Engineer at least 72 hours in advance of changes in schedule of operations, or suspension of Work and subsequent resumption of operations.

Do not commence any actual construction prior to the date on which the Notice to Proceed is issued by the Department.

Engineering costs incurred on the Project as the result of the Contractor's failure to notify the Engineer of a schedule change as outlined above, will be charged against the Contractor at the discretion of the Department. Work done in the absence of the Engineer or the Engineer's authorized representative, as the result of the Contractor's failure to give adequate notice of schedule change, will not be measured and paid for and, at the discretion of the Engineer, will be removed and replaced at the Contractor's expense.

The provisions of this Subsection will not make the Contractor liable for Engineering costs incurred when Work is suspended due to adverse weather conditions, providing that the Contractor notifies the Engineer immediately following the decision to suspend Work.

NOTE TO SPECIFIER:

It is important that the owner (sponsor) issue the Notice to Proceed for AIP contracts because any actual construction Work, performed prior to the execution of a grant agreement, (between the sponsor and the FAA) would be ineligible for FAA participation in its cost.

80-04 LIMITATION OF OPERATIONS. Control construction operations and the operations of subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the Air Operations Areas (AOA) of the Airport.

When the Work requires the Contractor to conduct operations within an AOA of the Airport, coordinate the Work with Airport management (through the Engineer) at least 48 hours prior to commencement of the Work. Do not close an AOA until authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in Subsection 70-08, Barricades, Warning Signs, and Hazard Markings.

When the Contract Work requires Work within an AOA of the Airport on an intermittent basis (intermittent opening and closing of the AOA), maintain constant communications as follows:

- a. Immediately obey all instructions to vacate the AOA
- b. Immediately obey all instructions to resume Work in the AOA.

Failure to maintain the specified communications or to obey instructions will be cause for suspension of the Contractor's operations in the AOA until the satisfactory conditions are provided. AOA's which cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis are indicated on the Plans or in the Special Provisions.

NOTE TO SPECIFIER:

It is intended that the Contract provisions which limit the Contractor's operations be specified for all Air Operations Areas of the airport that are not intended to be closed to permit continuous construction operations. These Contract provisions vary widely from airport to airport and require careful coordination (during the early stages of designing the work) with the owner, FAA, and the users of the airport. AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects, contains additional information on this subject. Indicate AOA on Construction Operations Sheet or in the Special Provisions.

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. Employ sufficient labor and equipment for prosecuting the Work to full completion in the manner and time required by the Contract, Plans, and Specifications.

NOTE TO SPECIFIER:

Special security requirements, such as 5-year background checks, may be added to the Special Provisions.

Have sufficient skilled and experienced workers to perform properly the Work assigned to them. Workers engaged in special Work or skilled Work shall have sufficient experience in the Work and in the operation of the equipment required to perform the Work satisfactorily.

Equipment to be used on the Work shall be of sufficient size and in a mechanical condition as to meet requirements of the Work and to produce quality work. Equipment used on the Work shall be such that no injury to previously completed Work, adjacent property, or existing Airport facilities will result from its use.

When the methods and equipment to be used in accomplishing the Work are not prescribed in the Contract, use any methods or equipment that will accomplish the Work in conformity with the requirements of the Contract, Plans, and Specifications.

When the Contract specifies the use of certain methods and equipment, use those methods and equipment unless others are authorized by the Engineer. Request authority from the engineer to use a method or type of equipment other than specified in the Contract. Write the request and include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor be fully responsible for producing Work in conformity with Contract requirements. If, after trial use

of the substituted methods or equipment, the Engineer determines that the Work produced does not meet Contract requirements, discontinue the use of the substitute method or equipment and complete the remaining Work with the specified methods and equipment. Remove deficient Work and replace it with Work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the Contract Items involved nor in Contract Time as a result of authorizing a change in methods or equipment under this Subsection.

Should workers or equipment fail to meet the requirements of this Subsection, the Engineer may withhold payments for affected portions of the Work.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Engineer has the authority to suspend the Work wholly, or in part, due to:

- a. unsuitable weather,
- b. other conditions as are considered unfavorable for the prosecution of the Work, or,
- c. such time as is necessary due to the failure to carry out orders given or perform any or all provisions of the Contract.

In the event the Engineer orders, in writing, to suspend Work for some unforeseen cause not otherwise provided for in the Contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the Work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend Work to the effective date of the Engineer's order to resume the Work. File claims for this compensation with the Engineer within the time period stated in the Engineer's order to resume Work. Accompany the claim with information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the Department for consideration. No provision of this article will be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Contractor, or for other delays provided for in the Contract, Plans, or Specifications.

If it should become necessary to suspend Work for an indefinite period, store all materials so they will not become an obstruction nor become damaged. Take every precaution to prevent damage or deterioration of the Work performed and provide for normal drainage of the Work. Erect temporary structures where necessary to provide for traffic on, to, or from the Airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The time for completion of the Work contemplated under the Contract will be specified in the Proposal as:

- a. a specific number of calendar days including Saturdays, Sundays and holidays;
- b. a specific number of working days, excluding Sundays, Saturdays, New Year's Day, Martin Luther King Jr. Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve Day, Christmas Day, New Year's Eve Day and the period from November 16 through March 31, both dates inclusive;
- c. a given calendar date on or before which Work shall be completed.

The completion of the Work within the time as specified is an essential part of the Contract.

Pursue the Work effectively and diligently to completion. Failure to begin operations, or to diligently prosecute the Work within the intent of this Subsection, may be considered as a breach of Contract and render the Contractor liable to action under default of Contract, or cause the revocation or suspension of the Contractor's privilege to bid additional work, or both.

The Contract starting date, for purposes of determining Contract Time and extensions, is defined as: When the Contract provides for starting Work not later than 10 days after the date of written notification from the Department to do so, or not later than 10 days after the date of official notification to the Contractor of the final execution of the Contract, the Contract starting date will be construed to be the date construction operations are started or the 10th day following the date of such notification, whichever is earlier.

Contract Time may be extended in an amount that is mutually agreed upon by the Department and the Contractor on the following basis:

- a. Contract Change Orders involving alterations in the Contract affecting the prosecution of Work, or
- b. Extra or additional Work, when such alterations are necessary for the purposes or convenience of the Department, or
- c. when such Extra or additional Work is of such character or is ordered to be done at such a time that the amount of time reasonably necessary to perform such Work is disproportionate to the Contract Time originally set up in the Proposal.

If Contract Time is extended by Contract Change Order, the agreement for extended time on this account shall be reached concurrently with and as a part of consideration for the specific alteration, Extra or additional Work covered by that Order. If no specific mention is made in the

Order, the value of the Extra or additional Work will be included in the computation of extension of Contract Time for increased value of Work as set forth.

If the money value of Work completed (exclusive of the Extra or additional Work for which additional time had been agreed) is in excess of the amount of the original Contract, the Contract Time will be extended proportionately in an amount, computed to the nearest whole day, in the ratio that the final cost of the Work (exclusive of the final cost of the extra or additional Work for which additional time had been agreed) bears to the total amount of the original Contract. When a Contract completion date is stipulated, the equivalent Contract Time for this purpose will be the total elapsed calendar days between the Contract starting date and the Contract completion date.

Should the Contractor find it impossible to complete the Work on or before the completion date as specified in the Contract, or extended as previously specified, at any time prior to 30 days after completion of Work under the Contract, the Contractor may submit a written request to the Department for an extension of time, setting forth in the request the reasons that they believe will justify the granting of the request.

If the Department finds that the Work was delayed because of conditions beyond the control of the Contractor, it may grant an extension of time for completion in such amounts as found to be warranted and justified; however, no liability will accrue to the Department due to granting an extension for increased costs incurred by the Contractor because of such delay.

80-08 LIQUIDATED DAMAGES. Should the Contractor fail to complete the Work within the time agreed upon in the Contract or within such extra time as may have been allowed by extensions, there will be deducted from any moneys due or that may become due the Contractor, for each and every calendar day for calendar day Contracts and completion date Contracts, or working day for working day contracts, that the Work shall remain uncompleted, a sum specified as follows:

<i>Original Contract Amount</i>		<i>Daily Charge</i>	
<i>From More Than</i>	<i>To and Including</i>	<i>Calendar Day</i>	<i>Working Day</i>
0	\$100,000	\$170.00	\$340.00
100,000	300,000	270.00	540.00
300,000	500,000	440.00	880.00
500,000	1,000,000	660.00	1,320.00
1,000,000	—	990.00	1,980.00

This sum will be considered and treated not as a penalty but as fixed, agreed, and liquidated damages due the State from the Contractor by reason of inconvenience to the public, added cost of engineering and supervision, maintenance of detours and other items that have caused an expenditure of public funds resulting from the Contractor’s failure to complete the work within the time specified in the Contract.

Permitting the Contractor to continue and finish the Work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Department of any of its rights under the Contract.

NOTE TO SPECIFIER:

The Contract Time is an essential part of each Contract for construction on airports and should be considered carefully in the preparation of plans and specifications.

In selecting the method of specifying the Contract Time (working days, or a specified completion date), the primary consideration should be the impact on the operations of the airport should the Contractor be unable to complete the Work within the time specified. These considerations should be coordinated with the airport users as indicated in AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects.

Generally speaking, Contract Time is based on working days when completion is not critical to operation of the airport. Use of a specified completion date should be used only in cases where the construction operations require long-range rescheduling of airport operations.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of the Contract and such default will be considered as cause for the Department to terminate the Contract for any of the following reasons if the Contractor:

- a. fails to begin the Work under the Contract within the time specified in the Notice to Proceed.
- b. fails to perform the Work or fails to provide sufficient workers, equipment, or materials to assure completion of Work in accordance with the terms of the Contract,
- c. performs the Work unsuitably or neglects or refuses to remove materials or to perform anew such Work as may be rejected as unacceptable and unsuitable,

- d. discontinues the prosecution of the Work,
- e. fails to resume Work which has been discontinued within a reasonable time after notice to do so,
- f. becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency,
- g. allows any final judgment to stand against them unsatisfied for a period of 48 hours,
- h. makes an assignment for the benefit of creditors,
- i. is determined to be in violation of the provisions of the Contract relative to hours of labor, wages, equal opportunity, character and classification of works employed, or
- j. for any other cause, fails to carry on acceptable Work.

Should the Engineer consider the Contractor in default of the Contract for any reason, written notice will be given immediately to the Contractor and the Contractor's Surety as to the reasons for considering the Contractor in default and the Department's intentions to terminate the Contract.

If the Contractor or Surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Department will, upon written notification from the Engineer of the facts of the delay, neglect, or default, and the Contractor's failure to comply with such notice, have full power and authority without violating the Contract, to take the prosecution of the Work out of the hands of the Contractor. The Department may appropriate or use acceptable materials and equipment that have been mobilized for use in the Work and may enter into an agreement for the completion of the Contract according to the terms, or use other methods as in the opinion of the Engineer will be required for the acceptable completion of the Contract,

All costs and charges incurred by the Department and Sponsor, together with the cost of completing the Work under Contract, will be deducted from any moneys due or which may become due the Contractor. If the expense exceeds the sum which would have been payable under the Contract, then the Contractor and the Surety will be liable and shall pay to the Department the amount of such excess.

80-10 TERMINATION OF THE CONTRACTOR'S RESPONSIBILITY. Whenever the improvement contemplated and covered by the Contract has been completely performed by the Contractor and all parts of the Work have been accepted by the Engineer and approved by the Department according to the Contract, and final estimate paid, the Contractor's obligation will be considered fulfilled except as provided in Subsection 60-07, Unacceptable Materials, and Subsection 70-18, No Waiver of Legal Rights.

80-11 EMERGENCY DEFERMENT OR CANCELLATION OF CONTRACT. The Department may, by written order, defer or cancel the Contract or any part thereof as provided, upon finding that for reasons beyond the control of the Department or the Contractor, the Contractor is unable to proceed with or complete the construction Contract and that such deferral or cancellation is in the public interest. Such reasons for deferral or cancellation may include, but need not be limited to:

- a. a national emergency that creates a shortage of materials, labor or equipment, by reason of war conditions involving the United States, or by reason of orders of the United States Government or its duly authorized agencies, or executive order with respect to prosecution of war or national defense,
- b. orders from duly constituted authorities related to energy conservation,
- c. in the event of an injunction or restraining order obtained by a citizen's action alleging violations of 42 U.S.C. 4331-4332, 23 U.S.C. 138, or Public Law 91-646.

In all cases where the construction is deferred, it will be done by written order of the Department. The Contractor will be paid for 95 percent of the amount of Work already completed, at Contract unit prices, or agreed prices when no unit prices are included in the Contract. Upon written request of the Contractor, and approval of the Contractor's Surety, such percent may be increased at the discretion of the Department.

Where the Contract, or any portion thereof, is definitely terminated or canceled, and the Contractor is released before all the Pay Items included in the Contract have been completed, payment will be made for the value of the actual Pay Items completed at Contract unit prices, or agreed prices where no unit prices are contained in the Contract, and no claim for loss of anticipated profits will be considered.

Acceptable materials, obtained by the Contractor for the Work, that have been inspected, tested, and accepted by the Engineer, and that are not incorporated in the Work, may, at the option of the Department, be purchased from the Contractor at actual cost as shown on receipted bills at such points of delivery as may be designated by the Engineer.

80-12 WORKING DAY CONTRACTS.

a. Schedule of Operations. When the Contract provides for a specific number of working days to complete the Work, 5 days prior to the pre-construction conference, submit to the Engineer a satisfactory progress schedule which shows the proposed sequence of the Work and the plan for completing the various items of Work within the number of working days in the Contract. Update and resubmit the schedule when required by the Engineer.

The schedule will be used for establishing the controlling item and for checking the Work progress.

b. Assessment Of Charges.

- (1) **General.** Contract Time on the working day basis will not be charged during periods of complete suspension of operations resulting from an order by the Engineer suspending operations as elsewhere established or when provided for in the Special Provisions or a Contract Change Order.

No working day charges will be assessed on Saturdays, Sundays, New Year's Day, Martin Luther King Jr. Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve Day, Christmas Day, and New Year's Eve Day, nor the period from November 16 through March 31, both dates inclusive, even though Work is performed on the controlling item, or on other days or times specified in the Special Provisions when Work on the controlling item is prohibited, except that work day charges will be assessed after November 15 for those Contracts not completed to the stage required by the Contract to be completed by November 16.

The Contractor shall not be entitled to claim Contract time adjustment or other damages if the Engineer determines Work shall not proceed during the period from November 16 through March 31.

A whole working day will be assessed for any day on which the controlling item can be prosecuted for 8 hours or more with full and normal efficiency.

A fractional working day of 1/4, 1/2, or 3/4 will be assessed when weather conditions, job conditions caused by weather, or other conditions beyond the control of the Contractor prevent the prosecution of Work on the controlling item for at least 8 hours with full and normal efficiency. Fractional working day charges will not be assessed for days on which Work cannot be prosecuted on the controlling Pay Item for at least 2 hours.

- (2) **Avoidable Delays.** Delays which the Contractor can foresee or are within their power to control or prevent. Working day charges will not be waived or reduced for avoidable delays. The following conditions will be considered avoidable delays due to or caused by:
- (a) conditions on the Project that could be foreseen at the time of bidding, including curing time for concrete, drying time for paint, traffic conditions, and similar delays.
 - (b) the failure of the Contractor to prosecute the Work or to provide sufficient forces and equipment to maintain satisfactory progress on the controlling item when conditions are otherwise satisfactory.
 - (c) slow delivery of materials from a supplier or fabricator due to priority, late ordering, financial considerations or other cause within the power of the Contractor to avoid.
 - (d) failure or breakdown of plant or equipment.
 - (e) strikes or job actions against the Contractor and within their power to settle, or due to shortages of labor in specific classifications.
 - (f) local material shortages.
 - (g) failure of subcontractors or suppliers to adequately perform.
- (3) **Unavoidable Delays.** Unavoidable delays are delays that the Contractor cannot foresee or control and are without their fault or negligence. Working day charges will not be assessed when Work on the controlling item cannot be prosecuted due to unavoidable delays. The following conditions will be considered unavoidable delays due to or caused by:
- (a) adverse weather or job conditions caused by recent weather which prevent Work on the controlling item.
 - (b) extraordinary delays in the delivery of materials, resulting from strikes, lockouts, freight embargoes, governmental acts, or sudden disaster of a nature beyond the power of the Contractor or their supplier to foresee and forestall.
 - (c) acts of the government or a political subdivision, or of the public enemy, or from fires, epidemics or strikes not caused by improper acts or omissions of the Contractor and beyond their power to settle.
 - (d) earthquake, flood, cloudburst, cyclone, tornado, or other cataclysmic phenomenon of a nature beyond the power of the Contractor to foresee and avoid.

- (e) the Department or other parties such as commercial manufacturers and fabricators who are the sole source of supply, the actions or non-actions of which are not within the power of the Contractor to control or overcome.
- (f) non-completion of Work being done by other contractors or utilities, or due to other unforeseeable interferences not the fault of the Contractor.

c. Weekly Statement. The Engineer will furnish the Contractor a weekly statement showing the number of days charged to the Contract for the preceding week. The Contractor will be allowed 1 week in which to review and approve the statement or to resolve, with the Engineer, disagreements concerning the working days' charges; otherwise, the statement will be deemed to have been accepted by the Contractor.

80-13 CALENDAR DAY AND COMPLETION DATE CONTRACTS.

a. General. Contract time on the Calendar Day and Completion Date basis will not be charged during periods of complete suspension resulting from an order by the Engineer suspending operations as elsewhere herein set forth or when provided for in the Special Provisions, or when authorized by Contract Change Order.

b. Avoidable Delays. Avoidable delays are delays that the Contractor can foresee or are within the Contractor's power to control or prevent. The conditions set forth in Subsection 80-12(2) will be considered avoidable delays for Calendar Day and Completion Date Contracts, and as such will not be sufficient basis for consideration of an adjustment of the time allowed for Contract completion.

c. Unavoidable Delays. Unavoidable delays are delays that the Contractor cannot foresee or control and are without the Contractor's fault or negligence. The following conditions will be considered unavoidable delays for Calendar Day and Completion Date Contracts, and as such will be sufficient basis for consideration of an adjustment of the time allowed for Contract completion when work on the controlling item cannot be prosecuted due to these unavoidable delays.

- (1) Extraordinary delays due to adverse weather or job conditions caused by recent weather that prevent work on the controlling item.
- (2) Extraordinary delays in the delivery of materials, resulting from strikes, lockouts, freight embargoes, governmental acts, or sudden disaster of a nature beyond the power of the Contractor or the Contractor's supplier to foresee and forestall.
- (3) Delays due to acts of the Government or a political subdivision, or of the public enemy, or from fires, epidemics or strikes not caused by improper acts or omissions of the Contractor and beyond the Contractor's power to settle.
- (4) Delays caused by an earthquake, flood, cloudburst, cyclone, tornado, or other cataclysmic phenomenon of a nature beyond the power of the Contractor to foresee and avoid.
- (5) Delays caused by the Department or other parties such as commercial manufacturers and fabricators who are the sole source of supply, the actions or non-actions of whom are not within the power of the Contractor to control or overcome.
- (6) Delays caused by noncompletion of work being done by other contractors or utilities, or due to other unforeseeable interferences not the fault of the Contractor.

SECTION 90. MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. The Engineer, or the Engineer's authorized representative, will measure all Work completed under the Contract using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of Work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Transverse measurements for area computations will be the actual dimensions shown on the Plans or ordered in writing by the Engineer.

Structures will be measured according to actual lines shown on the Plans or as altered to fit field conditions.

Unless otherwise specified, measure all Contract Pay Items that are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items along or parallel to their in-place location.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. Weigh all materials that are measured or proportioned by weights on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material be paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Weigh daily empty trucks used to haul material being paid for by weight when the Engineer directs. Each truck shall bear a plainly legible identification mark.

Haul materials to be measured by volume in approved vehicles, will be measured at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of a shape that the actual contents may be readily and accurately determined. Load all vehicles to at least their water level capacity, and level all loads when the vehicles arrive at the point of delivery.

When mutually agreed to in writing, material specified to be measured by the cubic yard may be weighed, and will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before the method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60 degrees F or will be corrected to the volume at 60 degrees F using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the Work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton or hundredweight.

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as the basis of payment for a Pay Item will mean complete payment for the Work described in the Contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the Work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the Change Order authorizing such force account work as provided in the Subsection 90-05, Payment for Extra and Force Account Work. Equipment rental rates contained in the Rental Rate Blue Book, published by Dataquest, Inc., San Jose, California, will be used, unless otherwise provided, to compute the equipment expense rate for contractor-owned machinery used on Extra Work to be paid for on a force account basis or the cost of major Pay Items for the purpose of adjusting unit prices thereof. The rental rates in effect on April 1 of each year will be used for work throughout the season. Rental rates will be adjusted to account for regional differences in cost.

The Rate Adjustment Tables contained in the Rental Rate Blue Book to determine the adjusted Blue Book rates for federally funded projects will be used to determine the equipment expense rates on all projects.

The equipment expense rate will be the sum of the monthly rental rate expressed on an hourly basis and the hourly operating cost, and will be determined as follows: The monthly rental rate will be divided by 176 to obtain the monthly-hourly rate.

When Contractor-owned equipment is required to "stand-by," only one half of the monthly-hourly rate adjusted for regional differences will apply. The stand-by rate will be allowed during the hours work is actually in progress on the force account items when the equipment is idle but specifically required by the Engineer to remain on the site for later use on the force account items.

Such expense rates will apply to all Contractor-owned equipment. The rate for rented equipment or any specialized equipment not listed in the Rental Rate Blue Book must be approved by the Engineer prior to use.

Apply the equipment expense rate to travel time when the equipment is moved under its own power. When equipment is transported, the expense rate will be allowed for the transporting vehicle only. Moves by commercial haulers will be at established freight rates.

Items of equipment having a replacement value of \$100 or less will be considered small tools and no allowance will be made for their use.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials that are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within 1/2 percent of the correct weight throughout the range of use. Have the scales checked under the observation of the inspector before beginning work and when requested. Space the intervals uniformly throughout the graduated or marked length of the beam or dial and do not exceed 1/10th of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound. The use of spring balances will not be permitted.

Arrange beams, dials, platforms, and other scale equipment so that the operator and the inspector can safely and conveniently view them. Have available at scale installations ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Install and maintain platform scales with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 1/2 of 1 percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

Include the following in the Contract prices for the various Pay Items of the project weighing of materials for proportioning or payment:

- a. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales;
- b. All costs for furnishing check weights and scale house; and,
- c. All costs for all other items specified in this Subsection

When the estimated quantities for a specific portion of the Work are designated as the pay quantities in the Contract, they will be the final quantities for which payment for the specific portion of the Work will be made, unless the dimensions of the portions of the Work shown on the Plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of the Work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 SCOPE OF PAYMENT. Receive and accept compensation provided for in the Contract as full payment for furnishing all materials, for performing all Work under the Contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the Work or the prosecution thereof, subject to the provisions of Subsection 70-18, No Waiver of Legal Rights.

When the "basis of payment" Subsection of a technical specification requires that the Contract Price (price bid) include compensation for certain Work or material essential to the item, this same Work or material will not also be measured for payment under any other Contract Item which may appear elsewhere in the Contract, Plans, or Specifications.

90-03 INCREASED OR DECREASED QUANTITIES. When the accepted quantities of Work vary from the quantities in the Proposal, accept as payment-in-full (so far as Contract Items are concerned) payment at the original Contract Price for the accepted quantities of Work actually completed and accepted. No allowance, except as provided for in Subsection 40-02, Alternation of Work and Quantities, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from Contractor's unbalanced allocation of overhead and profit among the Contract Items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in the Subsection 40-03, Omitted Items, the Engineer will have the right to omit from the Work any Contract Item in the best interest of the Department and Sponsor.

Should the Engineer omit or order nonperformance of a Contract Item or a portion of the Item from the Work, accept payment-in-full at the Contract prices for Work actually completed and acceptable prior to the Engineer's order to omit or nonperform the Contract Item.

Acceptable materials ordered by the Contractor or delivered on the Work prior to the date of the Engineer's order shall be paid for at the actual cost to the Contractor and will then become the property of the Sponsor.

In addition to the reimbursement provided, the Contractor will be reimbursed for all actual costs incurred for the purpose of performing the omitted Contract Item prior to the date of the Engineer's order. The additional costs incurred by the Contractor must be directly related to the deleted Contract Item and shall be supported by certified statements by the Contractor as to the nature of the amount of such costs.

90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. Extra Work, performed in accordance with the Subsection 40-04, Extra Work, will be paid for at the Contract Prices or agreed prices specified in the Change Order authorizing the Extra Work. When the Change Order requires that it be done by force account, the force account will be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance for overhead and profit.

a. The Contractor and the Engineer will compare records of the cost of force account work at the end of each day. Agreement will be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

b. Statement. No payment will be made for Work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of the force account work detailed as follows:

(1) For all labor and foremen in direct charge of the specific Work, the Contractor will receive the rate of wage agreed upon in writing before beginning Work, for each and every hour that the labor and foremen are actually engaged in such Work.

The Contractor will Receive the actual costs paid to, or on behalf of, workers by reason of subsistence and travel allowances, health, and welfare benefits required to be paid.

An amount equal to 35 percent of the above items will be added to the cost of these items.

(2) For property damage, liability, the worker's compensation insurance premiums, unemployment insurance contributions and social security taxes on the force account work, the Contractor will receive the actual cost, to which cost will be added an amount equal to 15 percent of the sum thereof. Furnish satisfactory evidence of the rate or rates paid.

(3) For materials accepted by the Engineer and used, the Contractor will receive the actual cost of such materials delivered to the Work including transportation charges paid by the Contractor (exclusive of machinery rentals as hereinafter set forth), to which cost will be added an amount equal to 15 percent of the sum thereof.

(4) For any machinery or special equipment (other than small tools) including fuel and lubricants, the use of which has been authorized by the Engineer, receive the rental rates agreed upon in writing before the work is begun, for the actual time that such equipment is in operation on the Work, and to which rental sum no percentage shall be added.

(5) No additional allowance will be made for general superintendence, the use of small tools, or other costs of which no specific allowance is herein provided.

(6) For administration costs when Work is performed by an approved subcontractor, the Contractor will receive an amount equal to 5 percent of the total costs of the Work computed as previously stated.

(7) The Contractor will receive the compensation as set forth above as payment in full for Extra Work done on a force account basis. At the end of each day, compare records with the Inspector of the cost of work done as ordered on a force account basis.

(8) No payment will be made for work performed on a force account basis until the Contractor furnishes to the Engineer duplicate itemized statements of the cost of such force account work, detailed as to the following:

(a) Name, classification, dates, daily hours, total hours, rate and extension of each laborer and foreman.

(b) Designation, dates, daily hours, total hours of actual operation and standby operation (if any), applicable expense rate and extension for each truck and other machinery and equipment. The designation must include the manufacturer's name or trademark, model number, and year of manufacture.

(c) Quantities of materials, prices and extensions.

(d) Transportation of materials.

(e) Cost of property damage, liability and worker's compensation insurance premiums, unemployment insurance contributions and social security tax.

Accompany and support statements with a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for the Work but are taken from the Contractor's stock, then in lieu of the invoices furnish an affidavit certifying that these materials were taken from stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

90-06 PARTIAL PAYMENTS. Partial payments will be made at least once each month as the Work progresses. Payments will be based upon estimates prepared by the Engineer of the value of the Work performed and materials complete in place in accordance with the Contract, Plans, and Specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the Subsection 90-07, Payment for Materials on Hand.

No partial payment will be made when the amount due the Contractor since the last estimate amounts to less than \$500.

From the total of the amount determined to be payable on a partial payment, the retainage will be an amount equal to 10 percent of the estimate until 50 percent of the Work has been completed. At 50 percent completion, further partial payments will be made to the Contractor and no additional amounts will be retained unless the Engineer certifies that the job is not proceeding satisfactorily, but amounts previously retained will not be paid to the Contractor. At 50 percent completion or any time thereafter when the progress of the Work is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10 percent of the value of the Work completed.

Upon substantial completion of the Work, an amount retained may be paid to the Contractor. When the Work has been substantially completed, except for Work that cannot be completed because of weather conditions, lack of materials or other reasons which, in the judgment of the Department, are valid reasons for non-completion, the Department may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the Work still to be completed or, in the alternative, may pay out the entire amount retained and receive from the Contractor guaranties in the form of a bond or other collateral sufficient to ensure completion of the job.

Additional amounts will be retained from each partial payment to provide for the recovery of liquidated damages assessable against the Contract and as required to cover any claims against the Contract that have been filed with the Department pursuant to Chapter 779 of the Wisconsin Statutes prior to payment of the estimate.

It is understood and agreed that the Contractor is not entitled to demand or receive partial payment based on quantities of Work in excess of those provided in the Proposal or covered by approved Change Orders, except when the excess quantities have been determined by the Engineer to be a part of the final quantity for the Pay Item of Work in question.

No partial payment will bind the Department to the acceptance of materials or Work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the Subsection 90-10, Acceptance and Final Payment.

90-07 PAYMENT FOR MATERIALS ON HAND. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the Work, provided that such materials meet the requirements of the Contract, Plans, and Specifications and are delivered to acceptable sites on the Airport property or at other sites in the vicinity that are acceptable to the Department. The delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Department legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

e. The Contractor has furnished the Department evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the Work.

It is understood and agreed that the transfer of title and the Department's payment for such stored or stockpiled materials will in no way relieve the Contractor of Contractor's responsibility for furnishing and placing such materials in accordance with the requirements of the Contract, Plans, and Specifications.

In no case will the amount of partial payments for materials on hand exceed the Contract Price for such materials or the Contract Price for the Contract Item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this Subsection.

90-08 ASSIGNMENT OF PAYMENTS. All moneys payable under the Contract, or any part thereof, will be paid to the Contractor in accordance with the provisions of this Section, and no assignment or order executed by the Contractor directing payment of any portion or all these funds to any persons will be recognized by the Department unless such assignment or order specifies the amount to be so paid. The purpose for which the assignment or order is given shall have attached, by endorsement or otherwise, the consent of the Surety. No such assignment or order will be binding on the Department.

90-09 DIFFERING SITE CONDITIONS. During the progress of Work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract, or if unknown physical conditions or an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract, are encountered at the site, the party discovering the conditions shall promptly notify the other party in writing of the specific differing conditions before the conditions are disturbed and before the affected Work is performed.

Upon written notification, the Engineer will investigate the conditions, and if the Engineer determines the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of Work under the Contract, an adjustment, excluding loss of anticipated profits, will be made and the Contract modified in writing accordingly. The Engineer will notify the Contractor whether or not an adjustment of the Contract is warranted.

No Contract adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

90-10 ACCEPTANCE AND FINAL PAYMENT. When the Contract Work has been accepted in accordance with the requirements of Subsection 50, Final Acceptance, the Engineer will prepare the final estimate of the Pay Items of Work actually performed. The Contractor can approve the Engineer's final estimate or advise the Engineer of objections to the final estimate that are based on disputes in measurements or computations of the final quantities to be paid under the Contract as amended by Change Order. The Contractor and the Engineer shall resolve disputes in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after the 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and the disputed quantities will be considered by the Department as a claim in accordance with Subsection 50-18, Claims for Adjustment and Disputes.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the Contract. All prior partial estimates and payments will be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Subsection 50-18, Claims for Adjustments and Disputes, or under the provisions of this Subsection, such claims will be considered by the Department in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

SECTION 100. CONTRACTOR QUALITY CONTROL PROGRAM

100-01 GENERAL. When the Specifications require a Contractor Quality Control Program, establish, provide, and maintain an effective Quality Control Program that details the methods and procedures to be taken to assure that all materials and completed construction required by this Contract conform to Contract Plans, Specifications, and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Contract Specifications, assume full responsibility for accomplishing the stated purpose.

The intent of this Section is to enable the Contractor to establish a necessary level of control that will:

- a. Adequately provide for the production of acceptable quality materials.
- b. Provide sufficient information to assure both the Contractor and the Engineer that the Specification requirements can be met.
- c. Allow the Contractor as much latitude as possible to develop their own standard of control.

Be prepared to discuss and present, at the preconstruction conference, the Contractor's understanding of the quality control requirements. Do not begin any construction or production of materials to be incorporated into the completed Work until the Quality Control Program has been reviewed by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

The quality control requirements contained in this Section and elsewhere in the Contract Specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. Establish a Quality Control Program to perform inspection and testing of all items of Work required by the Specifications, including those performed by subcontractors. This Quality Control Program shall:

- (1) ensure conformance to applicable Specifications and Plans with respect to materials, workmanship, construction, finish, and functional performance.
- (2) be effective for control of all construction Work performed under this Contract and shall specifically include surveillance and tests required by the Specifications, in addition to other requirements of this Section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

b. Quality Control Program. Describe the Quality Control Program in a written document that will be reviewed by the Engineer prior to the start of any production, construction, or off-site fabrication. Submit the written Quality Control Program shall be submitted to the Engineer for review at least 7 calendar days before the preconstruction meeting.

NOTE TO SPECIFIER:

Submittal of the written Quality Control Program prior to the preconstruction conference will allow the Engineer to review the contents and make suggestions at the preconstruction meeting.

Organize the Quality Control Program to address, as a minimum, the following items:

- (1) Quality control organization;
- (2) Project progress schedule;
- (3) Submittals schedule;
- (4) Inspection requirements;
- (5) Quality control testing plan;
- (6) Documentation of quality control activities; and
- (7) Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor is encouraged to add any additional elements to the Quality Control Program that are deemed necessary to adequately control all production and/or construction processes required by this Contract.

100-03 QUALITY CONTROL ORGANIZATION. Implement the Quality Control Program by the establishment of an autonomous quality control organization. Develop an organizational chart showing all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

Identify on the organizational chart all quality control staff by name and function, and indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of Work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of Work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of Subsection 100-03a and 100-03b. Indicate on the organizational chart which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

a. Program Administrator. A full-time employee of the Contractor, or a consultant engaged by the Contractor, with a minimum of 5 years of experience in airport and/or highway construction and prior quality control experience on a project of comparable size and scope as the Contract.

Additional qualifications for the Program Administrator include at least one of the following requirements:

- (1) Professional engineer with 1 year of airport paving experience acceptable to the Engineer.
- (2) Engineer-in-training with 2 years of airport paving experience acceptable to the Engineer.
- (3) An individual with 3 years of highway and/or airport paving experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
- (4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).
- (5) Highway materials technician certified at Level III by NICET.
- (6) Highway construction technician certified at Level III by NICET.
- (7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer.

The Program Administrator:

- (1) Shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the Contract Plans and Specifications.
- (2) Shall report directly to a responsible officer of the construction firm.
- (3) May supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

NOTE TO SPECIFIER:

If, in the opinion of the Engineer, the project is of sufficient scope and size to warrant a full time, on-site Program Administrator, paragraph 100-03a should be modified by Special Provision

b. Quality Control Technicians. Provide a sufficient number of quality control technicians necessary to adequately implement the Quality Control Program. These personnel shall be certified for the appropriate testing area in accordance with the Wisconsin Department of Transportation Highway Technician Certification Program.

The quality control technicians report directly to the Program Administrator and shall perform the following functions:

- (1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Subsection 100-06, Inspection Requirements.
- (2) Performance of all quality control tests as required by the technical specifications and Subsection 100-07, Quality Control Testing Plan. Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing Levels. Provide sufficient qualified quality control personnel to monitor each Work activity at all times. Where material is being produced in a plant for incorporation into the Work, provide separate plant and field technicians at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of Work activity. State in the Quality Control Program where different technicians will be required for different work elements.

100-04 PROJECT PROGRESS SCHEDULE. Submit a coordinated construction schedule for all Work activities in accordance with Subsection 80-03, Prosecution and Progress.

100-05 SUBMITTALS SCHEDULE. Submit a detailed listing of all submittals (e.g., mix designs, material certifications) and shop drawings required by the Specifications. The listing can be developed in a spreadsheet format and should include:

- a. specification number;
- b. pay item description;
- c. description of submittal;
- d. specification paragraph requiring submittal; and
- e. scheduled date of submittal.

100-06 INSPECTION REQUIREMENTS. Organize quality control inspections to provide inspections for all definable features of Work, as detailed below. Document all inspections by the Contractor as specified by Subsection 100-07, Quality Control Testing Plan.

Perform inspections daily to ensure continuing compliance with Contract requirements until completion of the particular feature of Work. These include the following minimum requirements:

a. During plant operation for material production, utilize quality control test results and periodic inspections to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. Inspect all equipment utilized in proportioning and mixing to ensure its proper operating condition. Detail in the Quality Control Program how these and other quality control functions shall be accomplished and utilized.

b. During field operations, utilize quality control test results and periodic inspections to ensure the quality of all materials and workmanship. Inspect all equipment utilized in placing, finishing, and compacting to ensure its proper operating condition and to ensure that all such operations are in conformance to the Specifications and are within the Plan dimensions, lines, grades, and tolerances specified. Document in the Quality Control Program how these and other quality control functions will be accomplished and utilized.

100-07 QUALITY CONTROL TESTING PLAN. As a part of the overall Quality Control Program, implement a quality control testing plan, as required by the Specifications. Include in the testing plan the minimum tests and test frequencies required by each Specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- a. specification number (e.g., P-401);
- b. pay item description (e.g., Plant Mix Bituminous Pavements);
- c. test type (e.g., gradation, grade, asphalt content);
- d. test standard (e.g., ASTM or AASHTO test number, as applicable);
- e. test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);
- f. responsibility (e.g., plant technician); and
- g. control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. Provide the Engineer the opportunity to witness quality control sampling and testing. Document all quality control test results as required by Subsection 100-08, Documentation.

100-08 DOCUMENTATION. Maintain current quality control records of all inspections and tests performed. Include in these records:

- a. factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved;
- b. results of inspections or tests;
- c. nature of defects, deviations, causes for rejection, etc.;
- d. proposed remedial action; and
- e. corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the Work are in full compliance with the terms of the Contract. Furnish legible copies of these records to the Engineer daily. The records shall cover all Work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the Contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

- (1) specification number and description;
- (2) compliance with approved submittals;
- (3) proper storage of materials and equipment;
- (4) proper operation of all equipment;
- (5) adherence to Plans and technical specifications;
- (6) review of quality control tests; and
- (7) safety inspection.

Identify in the daily inspection reports inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record.

b. Daily Test Reports. Establish a system which will record all quality control test results. Document in the daily test reports the following information:

- (1) specification number and description;
- (2) test designation;
- (3) location;
- (4) date of test;
- (5) control requirements;
- (6) test results;
- (7) causes for rejection;
- (8) recommended remedial actions; and
- (9) retests.

Submit to the Engineer prior to the start of the next day's work period test results from each day's work period. When required by the Specifications, maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

100-09 CORRECTIVE ACTION REQUIREMENTS. Indicate in the Quality Control Program the appropriate action to be taken when a process is deemed, or believed to be out of control (out of tolerance), and detail what action will be taken to bring the process into control. The requirements for corrective action include both general requirements for operation of the Quality Control Program as a whole, and for individual items of Work contained in the Specifications.

Detail in the Quality Control Program how the results of quality control inspections and tests will be used for determining the need for corrective action, clear sets of rules to gauge when a process is out of control, and the type of correction to be taken to regain process control.

When applicable or required by the Specifications, establish and utilize statistical quality control charts for individual quality control tests. Link the requirements for corrective action to the control charts.

100-10 SURVEILLANCE BY THE ENGINEER. All items of material and equipment will be subject to surveillance by the Engineer at the point of production, manufacture, or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable Specifications and Plans. In addition, all items of materials, equipment and Work in place will be subject to surveillance by the Engineer at the site for the same purpose.

Surveillance by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-11 NONCOMPLIANCE.

a. The Engineer will notify the Contractor of noncompliance with the foregoing requirements. After receipt of this notice, immediately take corrective action. Any notice, when delivered by the Engineer or Engineer's authorized representative to the Contractor or Contractor's authorized representative at the site of the work, is considered sufficient notice.

b. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:

- (1) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.
- (2) Order the Contractor to stop operations until appropriate corrective actions is taken.

SECTION 110. METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-01 GENERAL. When the Specifications provide for material to be sampled and tested on a statistical basis, the material will be evaluated for acceptance in accordance with this Section. All test results for a lot will be analyzed statistically, using procedures to determine the total estimated percent of the lot that is within Specification limits. This concept, termed percent within limits (PWL), is a statistically based evaluation method, whereby the PWL is computed on a lot basis, using the average (\bar{X}) and standard deviation (S_n) of the specified number (n) of subplot tests for the lot and the specification tolerance limits (L for lower and U for upper) for the particular acceptance parameter. From these values, the respective Quality index(s) (Q_L for Lower Quality Index and/or Q_U for Upper Quality Index) is computed and the PWL for the specified n is determined from Table 1.

110-02 METHOD FOR COMPUTING PWL. The computational sequence for computing the PWL is as follows:

- a. Divide the lot into n sublots in accordance with the acceptance requirements of the Specification.
- b. Locate the sampling position within the subplot in accordance with the random sampling requirements of the Specification.
- c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the Specification.
- d. Average all subplot values within the lot to find \bar{X} by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where:

\bar{X} = Average of all subplot values within a lot

x_1, x_2 = Individual subplot values

n = Number of sublots

- e. Find the standard deviation S_n by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2) / (n-1)]^{0.5}$$

Where:

S_n = standard deviation of the number of subplot values in the set

d_1, d_2 = deviations of the individual subplot values $X_1, X_2 \dots$ from the average value \bar{X}

that is: $d_1 = (x_1 - \bar{X}), d_2 = (x_2 - \bar{X}) \dots d_n = (x_n - \bar{X})$

n = number of sublots

- f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$Q_L = (\bar{X} - L) / S_n$$

Where:

L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L , using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double sided specification limits (i.e. **L** and **U**), compute the Quality Indexes **Q_L** and **Q_U** by use of the following formulas:

$$Q_L = (X - L) / S_n \text{ and } Q_U = (U - X) / S_n$$

Where:

L and **U** = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (**L**) and upper (**U**) tolerance limits (PWL) by entering Table 1 separately with **Q_L** and **Q_U**, using the column appropriate to the total number (**n**) of measurements, and determining the percent of material above **P_L** and percent of material below **P_U** for each tolerance limit. If the values of **Q_L** fall between values shown on the table, use the next higher value of **P_L** or **P_U**. Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where:

P_L = percent within lower specification limit

P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project
Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1	96.60
A-2	97.55
A-3	99.30
A-4	98.35

$$n = 4$$

2. Calculate average density for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$

$$X = 97.95 \text{ percent density}$$

3. Calculate the standard deviation for the lot.

$$S_n = \left[\frac{((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)}{(4 - 1)} \right]^{0.5}$$

$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{0.5}$$

$$S_n = 1.15$$

4. Calculate the Lower Quality Index **Q_L** for the lot. (L=96.3)

$$Q_L = (X - L) / S_n$$

$$Q_L = (97.95 - 96.30) / 1.15$$

$$Q_L = 1.4384$$

5. Determine **PWL** by entering Table 1 with $Q_L = 1.44$ and $n = 4$.

$$\mathbf{PWL} = 98$$

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1	5.00
A-2	3.74
A-3	2.30
A-4	3.25

2. Calculate the average air voids for the lot.

$$\mathbf{X} = (x_1 + x_2 + x_3 \dots n) / n$$

$$\mathbf{X} = (5.00 + 3.74 + 2.30 + 3.25) / 4$$

$$\mathbf{X} = 3.57 \text{ percent}$$

3. Calculate the standard deviation S_n for the lot.

$$\mathbf{S}_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{0.5}$$

$$\mathbf{S}_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{0.5}$$

$$\mathbf{S}_n = 1.12$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L = 2.0$)

$$\mathbf{Q}_L = (X - L) S_n$$

$$\mathbf{Q}_L = (3.57 - 2.00) / 1.12$$

$$\mathbf{Q}_L = 1.3992$$

5. Determine P_L by entering Table 1 with $Q_L = 1.40$ and $n = 4$.

$$\mathbf{P}_L = 97$$

6. Calculate the Upper Quality Index Q_U for the lot. ($U = 5.0$)

$$\mathbf{Q}_U = (U - X) / S_n$$

$$\mathbf{Q}_U = (5.00 - 3.57) / 1.12$$

$$\mathbf{Q}_U = 1.2702$$

7. Determine P_U by entering Table 1 with $Q_U = 1.27$ and $n = 4$.

$$\mathbf{P}_U = 93$$

8. Calculate Air Voids **PWL**

$$\mathbf{PWL} = (P_L + P_U) - 100$$

$$\mathbf{PWL} = (97 + 93) - 100 = 90$$

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)									
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10	n=11	n=12
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260	-0.0259	-0.0258
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521	-0.0518	-0.0516
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0792	-0.0786	-0.0781	-0.0778	-0.0775
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042	-0.1037	-0.1034
45	-0.1806	-0.1500	-0.1408	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304	-0.1298	-0.1293
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1592	-0.1575	-0.1566	-0.1559	-0.1553
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829	-0.1821	-0.1814
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093	-0.2084	-0.2076
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358	-0.2348	-0.2339
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624	-0.2613	-0.2604
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892	-0.2880	-0.2870
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161	-0.3148	-0.3137
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432	-0.3418	-0.3407
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705	-0.3690	-0.3678
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4031	-0.4001	-0.3980	-0.3964	-0.3951
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4354	-0.4310	-0.4280	-0.4257	-0.4241	-0.4227
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537	-0.4520	-0.4506
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820	-0.4802	-0.4787
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105	-0.5087	-0.5072
30	-0.6787	-0.6000	-0.5719	-0.5583	-0.5504	-0.5454	-0.5419	-0.5394	-0.5375	-0.5360
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686	-0.5667	-0.5651
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982	-0.5962	-0.5947
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282	-0.6262	-0.6247
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587	-0.6567	-0.6551
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896	-0.6876	-0.6861
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211	-0.7192	-0.7177
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531	-0.7513	-0.7498
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858	-0.7840	-0.7026
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192	-0.8175	-0.8161
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.0533	-0.8517	-0.8505
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882	-0.8868	-0.8057
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9325	-0.9281	-0.9258	-0.9241	-0.9228	-0.9219
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9672	-0.9643	-0.9624	-0.9610	-0.9599	-0.9591
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990	-0.9982	-0.9976
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382	-1.0377	-1.0374
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789	-1.0788	-1.0787
13	-1.0597	-1.1100	-1.1173	-1.1191	-1.1199	-1.1204	-1.1208	-1.1212	-1.1215	-1.1217
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653	-1.1661	-1.1668
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115	-1.2129	-1.2141
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602	-1.2623	-1.2640
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118	-1.3148	-1.3172
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670	-1.3709	-1.3741
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265	-1.4316	-1.4358
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4716	-1.4829	-1.4914	-1.4981	-1.5035
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635	-1.5721	-1.5790
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454	-1.6566	-1.6655
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420	-1.7566	-1.7684
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630	-1.8828	-1.8989
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362	-2.0657	-2.0897