# 02A

**Letting January 17, 2025**

# Notice to Bidders, Specifications and Proposal

Illinois Department of Transportation

**Springfield, Illinois 62764**

**Contract No. BO007**
**Bolingbrook's Clow International Airport**
**Bolingbrook, Illinois**
**Will County**
**Illinois Project No. 1C5-4718**
**SBG Project No. N/A**

(Printed by authority of the State of Illinois)

Illinois Department of Transportation

# NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. on January 17, 2025, at which time the bids will be publicly opened from the iCX SecureVault.

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

   **Contract No. BO007**
   **Bolingbrook's Clow International Airport**
   **Bolingbrook, Illinois**
   **Will County**
   **Illinois Project No. 1C5-4718**
   **SBG Project No. N/A**

   **Construct Replacement Parallel Taxiway & Replace Airport Rotating Beacon**

   **For engineering information, please contact Junaid Yahya, P.E. of Kimley-Horn and Associates, Inc. at 630.487.3472.**

3. **INSTRUCTIONS TO BIDDERS**.

   (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 10-23 of the Standard Specifications for Construction of Airports (Adopted March 22, 2023), become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

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

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

5. **PRE-BID CONFERENCE.** A voluntary pre-bid meeting will be held on January 6th, at 10:00 AM in the management office at the Bolingbrook airport, 130 Clow International Parkway C, Bolingbrook, IL. Meeting Description - For engineering information, contact Junaid Yahya (Junaid.yahya@kimley-horn.com) or Luke Burlingame (luke.burlingame@kimley-horn.com).

6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 11.0%.

7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Standard Specifications for Construction of Airports (Adopted March 22, 2023), the Special Provisions dated November 22, 2024, and the Construction Plans dated November 22, 2024 as approved by the Illinois Department of Transportation, Division of Aeronautics.

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

   a. Additive Alternates

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

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

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

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

   b. Optional Alternates

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

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

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

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

   The contract time for this contract is 138 calendar days.

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

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

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

By Order of the
Illinois Department of Transportation

Omer Osman,
Secretary

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
EEO

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

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

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

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

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

APPENDIX A

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

Area Covered (Statewide)

Goals for Women apply nationwide.

| GOAL | Goal (percent) |
|---|---|
| Female Utilization | 6.9 |

APPENDIX B

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

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

| | | |
|---|---|---|
| 083 | Chicago, IL: | |
| | SMSA Counties: | |
| | 1600 Chicago, IL - | 19.6 |
| | IL - Cook, DuPage, Kane, Lake, McHenry, Will | |
| | 3740 Kankakee, IL - | 9.1 |
| | IL - Kankakee | |
| | Non-SMSA Counties | 18.4 |
| | IL - Bureau, DeKalb, Grundy, Iroquois, Kendall, LaSalle, Livingston, Putnam | |
| | IN - Jasper, Laporte, Newton, Pulaski, Starke | |
| 084 | Champaign - Urbana, IL: | |
| | SMSA Counties: | |
| | 1400 Champaign - Urbana - Rantoul, IL - | 7.8 |
| | IL - Champaign | |
| | Non-SMSA Counties - | 4.8 |
| | IL - Coles, Cumberland, Douglas, Edgar, Ford, Piatt, Vermilion | |
| 085 | Springfield - Decatur, IL: | |
| | SMSA Counties: | |
| | 2040 Decatur, IL - | 7.6 |
| | IL - Macon | |
| | 7880 Springfield, IL - | 4.5 |
| | IL - Menard, Sangamon | |
| | Non-SMSA Counties | 4.0 |
| | IL - Cass, Christian, Dewitt, Logan, Morgan, Moultrie, Scott, Shelby | |
| 086 | Quincy, IL: | |
| | Non-SMSA Counties | 3.1 |
| | IL - Adams, Brown, Pike | |
| | MO - Lewis, Marion, Pike, Ralls | |
| 087 | Peoria, IL: | |
| | SMSA Counties: | |
| | 1040 Bloomington - Normal, IL - | 2.5 |
| | IL - McLean | |
| | 6120 Peoria, IL - | 4.4 |
| | IL - Peoria, Tazewell, Woodford | |
| | Non-SMSA Counties - | 3.3 |
| | IL - Fulton, Knox, McDonough, Marshall, Mason, Schuyler, Stark, Warren | |
| 088 | Rockford, IL: | |
| | SMSA Counties: | |
| | 6880 Rockford, IL - | 6.3 |
| | IL - Boone, Winnebago | |
| | Non-SMSA Counties - | 4.6 |
| | IL - Lee, Ogle, Stephenson | |
| 098 | Dubuque, IA: | |
| | Non-SMSA Counties - | 0.5 |
| | IL - JoDaviess | |
| | IA - Atlamakee, Clayton, Delaware, Jackson, Winnesheik | |
| | WI - Crawford, Grant, Lafayette | |
| 099 | Davenport, Rock Island, Moline, IA - IL: | |
| | SMSA Counties: | |
| | 1960 Davenport, Rock Island, Moline, IA - IL - | 4.6 |
| | IL - Henry, Rock Island | |
| | IA - Scott | |
| | Non-SMSA Counties - | 3.4 |
| | IL - Carroll, Hancock, Henderson, Mercer, Whiteside | |
| | IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine | |
| | MO - Clark | |

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

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

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

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

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

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

1. As used in these specifications:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State of Illinois
Department of Transportation

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

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

1. General

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

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

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

2. Equal Employment Opportunity Policy

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

3. Equal Employment Opportunity Officer

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

4. Dissemination of Policy

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

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

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

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

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

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

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

5. Recruitment

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

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

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

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

6. Personnel Actions

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

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

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

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

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

7. Training and Promotion

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

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

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

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

8. Unions

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

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

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

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

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

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

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

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

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

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

10. Records and Reports

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

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

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

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

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

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

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

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
REQUIRED PROVISIONS – STATE CONTRACTS

Effective: April 1 1965
Revised: January 1, 2017

I. SELECTION OF LABOR

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

EMPLOYMENT OF ILLINOIS WORKERS DURING PERIODS OF
EXCESSIVE UNEMPLOYMENT

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

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

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

II. EQUAL EMPLOYMENT OPPORTUNITY

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

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

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

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

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

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

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

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

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

III. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

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

IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

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

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

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

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

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

   In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's

social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPtracker Pro software. The software is web-based and can be accessed at https://lcptracker.com/. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected."

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

V. NONSEGREGATED FACILITIES

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

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

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 80 PROSECUTION AND PROGRESS

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports (Adopted March 22, 2023) and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

80-09 Failure to complete on time.

ADD:

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

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 90 MEASUREMENT AND PAYMENT

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports (Adopted March 22, 2023) and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

90-07 Partial payments.

DELETE: The entire section.

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

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

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

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

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

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

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

90-09 Trust agreement option.

DELETE: The entire section.

# STATE OF ILLINOIS

# SPECIAL PROVISIONS

The following Special Provisions supplement the Standard Specifications for Construction of Airports (Adopted March 22, 2023) and the Special Provisions included herein which apply to and govern the airport improvement of: Construct Replacement Parallel Taxiway & Replace Airport Rotating Beacon at Bolingbrook's Clow International, Contract BO007, and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

**SPECIAL PROVISION FOR COMPLETION TIME VIA CALENDAR DAYS**

It being understood and agreed that the completion within the time limit is an essential part of the contract, the bidder agrees to complete the work within **138 calendar days**, unless additional time is granted by the Engineer in accordance with the provisions of the specifications. In case of failure to complete the work on or before the time named herein, or within such extra time as may have been allowed by extensions, the bidder agrees that the Department of Transportation shall withhold from such sum as may be due him/her under the terms of this contract, the costs, as set forth in Section 80-09 Failure to Complete on Time of the Standard Specifications, which costs shall be considered and treated not as a penalty but as damages due to the State from the bidder by reason of the failure of the bidder to complete the work within the time specified in the contract.

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

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

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

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

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

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

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

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

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

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

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

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

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas

or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

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

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

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

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

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

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

**SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION**
Effective: September 1, 2000
Revised: January 2, 2025

1. OVERVIEW AND GENERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory. Award of the contract is conditioned on meeting the requirements of 49 CFR Part 26, and failure by the Contractor to carry out the requirements of Part 26 is a material breach of the contract and may result in the termination of the contract or such other remedies as the Department deems appropriate.

2. CONTRACTOR ASSURANCE. All assurances set forth in FHWA 1273 are hereby incorporated by reference and will be physically attached to the final contract and all subcontracts.

3. CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. The Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies and that, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform 11.0% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work in accordance with the requirements of 49 CFR 26.53 and SBE Memorandum No. 24-02.

4. IDENTIFICATION OF CERTIFIED DBE. Information about certified DBE Contractors can be found in the Illinois UCP Directory. Bidders can obtain additional information and assistance with identifying DBE-certified companies at the Department's website or by contacting the Department's Bureau of Small Business Enterprises at (217) 785-4611.

5. BIDDING PROCEDURES. Compliance with this Special Provision and SBE Policy Memorandum 24-02 is a material bidding requirement. The following shall be included with the bid.

   (a) DBE Utilization Plan (form SBE 2026) documenting enough DBE participation has been obtained to meet the goal, or a good faith effort has been made to meet the goal even though the efforts did not succeed in obtaining enough DBE participation to meet the goal.

   (b) Applicable DBE Participation Statement (form SBE 2023, 2024, and/or 2025) for each DBE firm the bidder has committed to perform the work to achieve the contract goal.

   The required forms and documentation shall be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

   The Department will not accept a bid if it does not meet the bidding procedures set forth herein and the bid will be declared non-responsive. A bidder declared non-responsive for failure to meet the bidding procedures will not give rise to an administrative reconsideration. In the event the bid is

declared non-responsive, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

6. UTILZATION PLAN EVALUATION. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate, and adequately document the bidder has committed to DBE participation sufficient to meet the goal, or that the bidder has made good faith efforts to do so, in the event the bidder cannot meet the goal, in order for the Department to commit to the performance of the contract by the bidder.

   The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the Department determines, based upon the documentation submitted, that the bidder has made a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A and the requirements of SBE 2026.

   If the Department determines that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan of that determination in accordance with SBE Policy Memorandum 24-02.

7. CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work the bidder commits to have performed by the specified DBEs and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE firms. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific guidelines for counting goal credit are provided in 49 CFR Part 26.55. In evaluating Utilization Plans for award the Department will count goal credit as set forth in Part 26 and in accordance with SBE Policy Memorandum 24-02.

8. CONTRACT COMPLIANCE. The Contractor must utilize the specific DBEs listed to perform the work and supply the materials for which each DBE is listed in the Contractor's approved Utilization Plan, unless the Contractor obtains the Department's written consent to terminate the DBE or any portion of its work. The DBE Utilization Plan approved by SBE is a condition-of-award, and any deviation to that Utilization Plan, the work set forth therein to be performed by DBE firms, or the DBE firms specified to perform that work, must be approved, in writing, by the Department in accordance with federal regulatory requirements. Deviation from the DBE Utilization Plan condition-of-award without such written approval is a violation of the contract and may result in termination of the contract or such other remedy the Department deems appropriate. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan.

   (a) NOTICE OF DBE PERFORMANCE. The Contractor shall provide the Engineer with at least three days advance notice of when all DBE firms are expected to perform the work committed under the Contractor's Utilization Plan.

   (b) SUBCONTRACT. If awarded the contract, the Contractor is required to enter into written subcontracts with all DBE firms indicated in the approved Utilization Plan and must provide copies of fully executed DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

   (c) PAYMENT TO DBE FIRMS. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goal has been paid to the DBE. The Contractor shall document and report all payments for work performed by DBE certified firms in accordance with Article 109.11 of the Standard Specifications. All records of payment for work performed by DBE certified firms shall be made available to the Department upon request.

   (d) FINAL PAYMENT. After the performance of the final item of work or trucking, or delivery of material by a DBE and final payment to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement (form SBE 2115) to the Engineer. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

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

**SPECIAL PROVISION FOR WEEKLY DBE TRUCKING REPORTS (BDE)**
Effective: June 2, 2012
Revised: January 2, 2025

The following applies to all Disadvantaged Business Enterprise (DBE) trucks on the project, whether they are utilized for DBE goal credit or not.

The Contractor shall notify the Engineer at least three days prior to DBE trucking activity.

The Contractor shall submit a weekly report of DBE trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) to the Resident Engineer on Division of Aeronautics Form "AER 723" within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Subcontractor and Disadvantaged Business Enterprise Payment Reporting

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

(a) first tier subcontractors;

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

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

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

**SPECIAL PROVISION FOR NPDES CERTIFICATION**

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

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

The Airport Owner or its Agent will:

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

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

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

4) submit Notice of Termination (NOT) form

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

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

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

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

**SPECIAL PROVISION FOR SUBMISSION OF BIDDERS LIST INFORMATION (BDE)**
Effective: January 2, 2025

In accordance with 49 CFR 26.11(c) all bidders for federally assisted contracts shall submit bidders list information with their bid or initial response to a procurement solicitation. Submission of the bidders list information is a material bidding requirement, and failure to comply with this requirement may render the bid non-responsive.

The bidders list information shall be provided for each firm from whom the bidder receives any bid as a subcontractor. This requirement is not limited to DBE subcontractor bids but applies to all DBE and non-DBE firms from whom the bidder has received a quote or bid to work as a subcontractor, whether or not the bidder has relied upon that bid in placing its bid as the prime contractor. The bidders list information shall contain the following.

(a) Firm name;
(b) Firm address including ZIP code;
(c) Firm's status as a DBE or non-DBE;
(d) Race and gender information for the firm's majority owner;
(e) NAICS code applicable to each scope of work the firm sought to perform in its bid;
(f) Age of the firm; and
(g) The annual gross receipts of the firm (this may be provided by indicating whether the firm's annual gross receipts are less than $1 million; $1-3 million; $3-6 million; $6-10 million; etc.).

The bidders list information shall be submitted with the bid using the link provided within the "Integrated Contractor Exchange (iCX)" application of the Department's "EBids System".

## REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

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

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

ITEM NO. 02A

CONTRACT NO BO007

# SPECIAL PROVISIONS

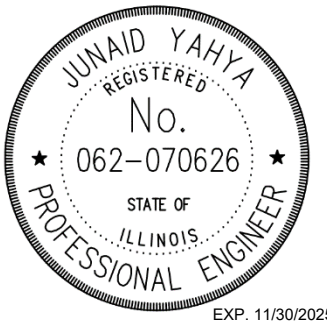
## VILLAGE OF BOLINGBROOK

## BOLINGBROOK'S CLOW INTERNATIONAL AIRPORT (1C5)

## CONSTRUCT REPLACEMENT PARALLEL TAXIWAY AND REPLACE AIRPORT ROTATING BEACON

ILLINOIS PROJECT NO. 1C5-4718
SBG PROJECT NO. N/A
KIMLEY-HORN PROJECT NO. 168001005

ISSUED FOR BID
NOVEMBER 22, 2024
IDOT LETTING DATE JANUARY 17, 2025




EXP. 11/30/2025

X Junaid Yahya

Junaid Yahya, PE
Kimley-Horn Project Engineer

## GENERAL

These Special Provisions, together with the applicable Standard Specifications for Construction of Airports, Policy Memorandums, Contract Requirements for Airport Improvement Projects, Rules and Regulations, Payroll Requirements and Minimum Wage Rates which are hereto attached or which by reference are herein incorporated, cover the requirements of the State of Illinois, Department of Transportation, Division of Aeronautics and the representatives of the Village of Bolingbrook (Sponsor) for the Replacement Parallel Taxiway and Replace Airport Rotating Beacon Rehabilitate at Bolingbrook's Clow International Airport, Bolingbrook, Illinois.

## GOVERNING SPECIFICATION AND RULES AND REGULATIONS

The Standard Specifications for Construction of Airports, State of Illinois Department of Transportation, Division of Aeronautics, adopted March 22, 2023 shall govern the project except as otherwise noted in these Special Provisions. In the case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and shall govern. Where noted within the Special Provisions, the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction dated January 1, 2022 shall apply. Where conflicts arise regarding contract documents versus IDOT Airport and Highway Standards and Standard Drawings, the contract documents shall govern.

## INDEX TO SPECIAL PROVISION

APPENDICES

A IDA MEMORANDUMS

- 87-2 Density Acceptance of Bituminous Pavements
- 87-4 Determination of Bulk Specific Gravity (d) of Compacted Bituminous Mixes
- 96-1 Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval & Production Testing
- 96-3 Requirements for Quality Assurance On Projects with Bituminous Concrete Paving
- 97-2 Pavement Marking Paint Acceptance
- 2001-1 Requirements for Cold Weather Concreting
- 2003-1 Requirements for Laboratory, Testing, Quality Control, and Paving of Superpave HMA Concrete Mixtures for Airports
- 22-1 Accepted Cement Types
- 22-2 Obtaining Approved Aggregates Complying with 2020 Standard Specifications for Construction of Airports
- HMA Comparison Samples, Dated December 7, 2020

B Geotechnical Report

PART 1 – GENERAL CONTRACT PROVISIONS

## SECTION 40 SCOPE OF WORK

### 40-05 MAINTENANCE OF TRAFFIC

ADD: The contractor shall be responsible for cleaning and maintaining all terminal and airport access roads and using a vacuum type mechanical sweeper on all pavements and adjacent pavements utilized during the construction process when material is tracked onto the existing pavement. The Contractor shall have a sweeper on site and always maintain all pavements clear of dirt and debris or as requested by the Resident Engineer. If the Contractor fails to comply with the Standard Specifications, Contract Plans or these Special Provisions concerning traffic control, all construction activities shall cease, and the Contractor will be required to correct the deficiencies to the satisfaction of the Resident Engineer and Owner. The Contractor shall be responsible for supplying, maintaining, and moving all barrels and/or barricades required for the staged construction as shown and detailed in the contract plans.

The Contractor shall always maintain operation to the JW Aviation Flight School and shall always operate within phased areas as detailed in the contract documents. The storage and parking of equipment and materials shall be always within the phased delineated areas, unless otherwise directed by the Resident Engineer. Open trenches, excavations and stockpiled material near operation pavement shall be protected. The work area shall be kept clean of debris and garbage that may become airborne and deposited on the nearby runways. To help facilitate this effort garbage barrels shall be provided by the Contractor for use of the workers during construction.

The contractor shall provide his own radio capable of transmitting and receiving on the Unicom frequencies of 122.9 MHz.

### 40-09 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

ADD: To maintain airport operations and to facilitate the construction of the proposed work, the project has been divided into separate phases in accordance with Advisory Circular 150/5370-2 Operational Safety on Airports During Construction. References to Construction Safety and Phasing Plans (CSPP) in that document shall be interpreted to mean the phase limits, barricade locations, access points and notes shown on the Construction Safety and Phasing Plan sheets included in the as-bid contract documents. When "safety" is used or referred to in the contract documents and in the advisory circular(s) it shall be redefined by this contract as meaning "operational safety". The Construction Safety and Phasing Plan (CSPP) establishes the airport and project specific requirements, supplementing the requirements in the AC, that are to be included in the contractor's bid for maintaining operational safety during construction.

The contractor shall be required to divide the overall work into separate phases in substantial conformance with the CSPP shown in the plans, except as allowed by the contract documents and approved by IDOT on behalf of the FAA. Durations specified for individual phases shall become requirements of the contract and shall be subject to liquidated damages.

ADD: The Contractor activity on the airfield shall be limited to the limits of construction as identified on the Contractor Safety and Phasing Plan drawings. Beyond the limits of construction, the Contractor shall not have access to any part of the active airfield pavement with any equipment or personnel without the approval of Airport Management. Work on or near runways will not be permitted.

# SECTION 50 CONTROL OF WORK

## 50-04 COOPERATION OF CONTRACTOR

ADD at the end of this section:

A materials/pre-paving meeting shall be scheduled by the Contractor prior to the start of various paving operations to discuss material acquisition, mixing, placing, and testing requirements. The superintendent, paving foreman, batching foreman/material supplier, quality control officer, and the Resident Engineer are required to attend this meeting conducted by the Illinois Division of Aeronautics representatives.

## 50-05 COOPERATION BETWEEN CONTRACTORS

ADD: The Contractor shall acquaint himself with all other contracts prior to bidding and shall cooperate with Airport management and any other contractors who may be working on other contracts.

## 50-06 CONSTRUCTION LAYOUT STAKES

ADD: It is not the responsibility of the Resident Engineer to check the correctness of the Contractor's stakes or forms, except as provided herein; however, any errors that are apparent shall be immediately called to the Contractor's attention, and he shall be required to make the necessary correction before the stakes are used for construction purposes.

## 50-07.1 AUTHORITY OF THE RESIDENT ENGINEER

ADD: The Resident Engineer shall not be allowed to modify the contract documents without the approval of the Division.

## 50-10 LOAD RESTRICTIONS

ADD: The existing pavement is considered light duty and the contractor shall take into consideration the existing pavement strength when selecting construction equipment. Any damage to airport pavements outside of the limits of pavement removal shall be repaired by the contractor at his own expense and to the satisfaction of the Resident Engineer.

Access to the construction work area is limited to the haul routes as shown on the Construction Safety and Phasing Plan drawings. The use of existing airfield pavements by Contractor construction traffic including all haul trucks is prohibited unless previously approved by the Airport Manager. Any damage to existing Airport pavement due to construction traffic operating beyond the approved work limits, hauling outside of the approved haul/access routes and construction traffic operating in prohibited areas shall be repaired by the Contractor at his own expense to the satisfaction of the Owner.

## 50-11 MAINTENANCE DURING CONSTRUCTION

ADD: The Contractor shall make provisions in the work to maintain positive drainage from the work areas and to minimize the ponding of water. In areas where the Contractor is required to core out or remove pavements the contractor shall cut temporary ditches or swales to maintain positive drainage. At locations where temporary ditches are not feasible, the contractor shall excavate stormwater storage areas adjacent to but at a lower elevation than the bottom of the work and utilize mechanical pumps to promptly remove stormwater from the excavations.

ADD: At all times, the Contractor shall have on site and available for use a self- propelled, vacuum or regenerative (recirculating) air pavement sweeper, a pavement blower or tractor mounted "sweeper box".

ADD: Material tracked onto public streets shall be removed continuously during the work.

## 50-16 PLANS AND WORK DRAWINGS

ADD after the last paragraph:

Submittal review will not relieve the Contractor of the responsibility for complying with the contract document requirements or for any error that may exist in the submittal. The Contractor is responsible for the dimensions and designs of adequate connections, detail, and satisfactory construction of all work.

## SECTION 60 CONTROL OF MATERIALS

### 60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

REVISE after the last paragraph:

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

If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 50-17, 60-01, 60-03, 60-04 and 60-09 of the Standard Specifications and Special Provisions, the pay item shall not be included on the Construction Progress Payment report until such submittals have been furnished.

## SECTION 70 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-25 CONTRACTOR'S RESPONSIBILITY FOR SAFETY DURING CONSTRUCTION

ADD after 70.25(d):

e. Provide a safety officer/construction inspector(s) trained in airport safety to maintain the CSPP and SPCD and to monitor all construction activities.

f. Ensure that no construction employees, employees of subcontractors or suppliers, or other persons enter any part of the aircraft operations area from construction site unless authorized by the Airport Manager.

# SECTION 80 PROSECUTION AND PROGRESS

## 80-03 PROSECUTION AND PROGRESS

ADD: In the event that work does not proceed as shown on the current progress schedule, the Contractor shall provide an updated progress schedule on a weekly basis until such time that the work is proceeding according to the current progress schedule.

## 80-04 LIMITATION OF OPERATIONS

ADD to last paragraph:

The Contractor shall keep all personnel, equipment, materials and construction activity outside of the Object Free Areas of all active runways and taxiways, as dimensioned in the drawings.

It is intended to plan, conduct, and complete the work in these critical traffic areas in such a manner that the length and amount of interruption to aircraft traffic at the Airport is minimized.

The Contractor shall comply with Federal Aviation Regulations Part 107 (Airport Security) and with all rules and regulations of the Airport, including, but not limited to, control and access to the airfield by Contractor's, employees and agents. In the event the Airport is assessed a fine by the Federal Aviation Administration for breach of security resulting from actions of Contractor's employees and agents, the Contractor shall fully reimburse the Airport for the amount of such fine.

## 80-08 DETERMINATION OF THE CONTRACT TIME

ADD: After the last paragraph of this section:

For this project, the following number of calendar days available for work per month has been assumed to be:

| Month | Workable Calendar Days |
|---|---|
| January | 0 |
| February | 0 |
| March | 0 |
| April | 0 |
| May | 15 |
| June | 17 |
| July | 17 |
| August | 17 |
| September | 16 |
| October | 16 |
| November | 14 |
| December | 0 |

## 80-13 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS

ADD: The Contractor's employees shall park personal vehicles at the laydown area location identified on the plans or as agreed to at the pre-construction meeting. Personal vehicles are not permitted on the construction site and use of personal vehicles beyond the staging area will not be allowed.

The Contractor activity on the airfield and haul routes shall be limited to the limits of construction identified on the Contractor Access, Staging and Safety Plan and notes drawings. Beyond the limits of construction, the contractor shall not have access to any part of the active airfield pavements (runways, aprons, or taxiways) with any equipment or by any personnel without the approval of the Airport.

Upon completion of construction, all areas disturbed by the contractors operations including the haul road and staging and storage site shall be re-graded, cleaned of all debris and restored to original un-disturbed conditions to the satisfaction of the Resident Engineer and the Owner. Clean up and restoration shall not be paid for separately but shall be considered incidental to the contract.

PART 2 – GENERAL CONSTRUCTION ITEMS

## ITEM 102 – EROSION CONTROL

DESCRIPTION

102-1.2 DELETE this section.

ADD the following:

This item shall include a temporary construction entrance at the location specified in the drawings.

102-1.3 DELETE this section.

MATERIALS

ADD the following:

102-2.8 Temporary Construction Entrance. The temporary construction entrance shall be constructed with CA-1 or other 2" – 3" gravel as accepted by the Engineer, placed on non-woven geotextile fabric.

CONSTRUCTION REQUIREMENTS

ADD the following:

102-3.11 Construction Entrance. The locations and dimensions of the installation of construction entrances shall be as depicted in the drawings, as specified by the Engineer or at any entrance gate used by the contractor that is not adjacent to pavement.

METHOD OF MEASUREMENT

ADD the following:

102-4.12 Construction entrances shall be measure by the number of square yards for all completed installations accepted by the Resident Engineer.

BASIS OF PAYMENT

102-5.1

ADD:

Payment will be made at the contract unit price per each for all construction entrances installed. This price shall be full compensation for furnishing all materials and for all preparation, installation, maintenance, removal and restoration of construction entrance areas with suitable material as directed by the Engineer, topsoil, seeding and mulching.

ADD: Payment will be made under:

Item AR156510 – Silt Fence – per linear foot.
Item AR156520 – Inlet Protection – per each.

## ITEM 105 MOBILIZATION

BASIS OF PAYMENT

105-3.1

ADD: Payment will be made under:

Item AR150520 – Mobilization – per lump sum.

# ITEM 150530 TRAFFIC MAINTENANCE

## DESCRIPTION

150530-1.1

This item shall consist of furnishing, placing, maintaining and removing traffic control devices including taxiway closure markings, barricades, flags, construction signs, and other items as indicated in the plans or standard specifications.

## EQUIPMENT AND MATERIALS

150530-2.1

Taxiway closure markings, barricades, flags and other traffic control devices as indicated in the plans or standard specifications.

## METHOD OF MEASUREMENT

150530-3.1

The furnishing, placing, maintaining and removing traffic control devices shall be measured as a lump sum item completed and accepted by the Engineer.

The Construction Phasing Plan represents one suggested alternative for the construction sequencing and method of handling traffic. Revisions or modifications of the traffic control shall have the Engineer's written approval. Any deviation from the proposed plan shall be approved in writing by the Engineer before implementation.

At the pre-construction conference, the Contractor shall furnish the name and telephone number of the individual in the Contractor's employ who is to be responsible, 24 hours a day, for the installation and maintenance of traffic control for the Project. When the actual installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the Engineer at the time of the preconstruction conference. This shall not relieve the Contractor of furnishing a responsible individual in the Contractor's direct employ. The Engineer will provide the Contractor with the name of its representative who will be responsible for administration of the traffic control.

Removal, relocation, maintenance and inspection of traffic control devices, as required by the Contractor's activities, shall be incidental to the item and not measured separately for payment.

## BASIS OF PAYMENT

150530-4.1

Payment for this item shall be at the contract lump sum price for the completed work. This price shall be full compensation for furnishing all material, for all preparation, assembly and installation of materials, for all maintenance of materials, for all removals, and for all labor, equipment, tools and incidentals necessary to complete the item.

Payment will be made under:

Item AR150530 – Traffic Maintenance – per lump sum.

## ITEM AR150540 HAUL ROUTE

BASIS OF PAYMENT

105540-1.1

ADD: Payment will be made under:

Item AR150540 – Haul Route – per square yard.

PART 3 – SITEWORK

## ITEM 152 EXCAVATION AND EMBANKMENT

DESCRIPTION

152-1.1

ADD: This work will also consist of excavation to proposed subgrade where pavement removal and replacement is indicated in the contract drawings.

All earthwork shall be in accordance with any applicable Village of Bolingbrook or Will County ordinances and the NPDES Construction Site permit for this Project. It shall be the responsibility of the Contractor to confirm any required local ordinances or permits.

152-1.6

ADD: Earthwork cut as required in the Plans may result in unsuitable/unstable material that cannot be incorporated into the work as fill material when constructing the lines and grades shown in the Plan. All such unsuitable/unstable material, that cannot be used in the Work, as determined by the Resident Engineer, shall be loaded and hauled to an off-site disposal site authorized to accept the debris. Excess but suitable material shall be used elsewhere in the Work to the extent possible. Any excess suitable material that cannot be incorporated into the Work shall be lawfully disposed of off-site. The loading, hauling and disposal off-site, including any regulatory testing/documentation, shall not be paid for separately, but shall be incidental to the Contract unit price for "Unclassified Excavation" or "Topsoil Stripping."

CONSTRUCTION METHODS

152-3.1

ADD: Contractor shall be responsible for locating and protecting all subsurface utilities.

152-3.8

ADD: Compaction control testing shall be per ASTM D698 (Standard Proctor) for all areas of work.

152-3.9

ADD: The Contractor will proof-roll the subgrade when required by the Resident Engineer, as directed by the Resident Engineer. The cost for this proofing shall be incidental to Item AR152410 – Unclassified Excavation.

152-3.15

DELETE: Last two sentences.

ADD: Placement and storage of the salvaged topsoil shall not be paid for separately, but shall be incidental to the Contract unit price for "Topsoil Stripping."

BASIS OF PAYMENT

152-5.1

ADD: Payment will be made under:

Item AR152410 – Unclassified Excavation – per cubic yard.

# ITEM 152515 – SUBGRADE UNDERCUT

## DESCRIPTION

152515-1.1

This work shall consist of undercutting up to 2'-6" of soft subgrade material, and furnishing, placing, shaping and compacting crushed stone CA-1 for use as an aggregate backfill on top of on top of Class 3 filter fabric in undercut areas in the existing subgrade. This work will take place as the field conditions warrant at the time of construction as directed by the Engineer. The material is intended to repair soft subgrade as directed by the Resident Engineer or Owner.

Any earth excavation shall be in accordance with ITEM 152 and will be considered incidental to Item AR152515 Subgrade Undercut. The placement of geotextile fabric shall be non-woven and shall be considered incidental to Item AR152515 Subgrade Undercut. The procurement, delivery, placement and compaction of CA-1, shall not be paid for separately, but shall be incidental to the Contract unit price for "AR152515 Subgrade Undercut."

## MATERIALS

152515-2.1 COARSE AGGREGATE

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

Gradation for CA-1 shall be as follows:

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

## CONSTRUCTION REQUIREMENTS

152515-3.1 GENERAL

The Contractor shall consult with the Resident Engineer to determine any locations within the project site that will require undercut and backfill. The Resident Engineer will have final say over locations requiring backfill.

The aggregate material shall be obtained from approved resources and shall be handled in a manner that shall secure a satisfactory product.

152515-3.2 EQUIPMENT

The equipment required for this work shall be in accordance with applicable sections of Article 206.03 of IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2022. All equipment shall be approved by the Resident Engineer prior to the start of the work.

152515-3.3 PREPARING UNDERLYING COURSE

The underlying subgrade shall be free of objects and debris. The final acceptance of the subgrade shall be approved by the Resident Engineer.

152515-3.4 PLACING AND SPREADING

The coarse aggregate shall be placed in lifts no greater than one (1) foot thick or as directed by the Engineer. Rolling the top of this replacement material with a vibratory roller meeting the requirements of Section 1101 of the IDOT Standard Specification for Road and Bridge Construction should be sufficient to obtain the desired keying or interlock and necessary compaction. The Engineer or Owner shall verify that adequate keying has been obtained. The Contractor shall place the base materials so as not to damage the underlying subgrade. The base shall be compacted to the satisfaction of the Engineer.

Capping aggregate will not be required when embankment meeting the requirements of Section 208 of the Standard Specifications or granular subbase is placed on top of the CA-1 crushed stone. Capping aggregate (two (2) inch depth) will be required when embankment meeting the requirements of Section 152 of the Standard Specifications is placed on top of the CA-1 crushed stone.

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

## METHOD OF MEASUREMENT

152515-4.1

The quantity of Subgrade Undercut shall be paid for per cubic yard of material placed as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities.

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

## BASIS OF PAYMENT

152515-5.1

Payment will be made under the Contract unit price per cubic yards for Subgrade Undercut and shall include all required materials, labor, and equipment necessary to complete the work to the satisfaction of the Resident Engineer.

Item AR152515 – Subgrade Undercut – per cubic yard.

## ITEM 154606 - GRANULAR DRAINAGE SUBBASE – 6"

### DESCRIPTION

154606-1.1

This work shall consist of furnishing, placing, shaping, and compacting crushed stone for the granular drainage subbase layer.

### MATERIALS

154606-2.1 COARSE AGGREGATE

The crushed coarse aggregate shall be in accordance with Article 1004.04 of IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2022 and the following additional requirements:

a. Description: The coarse aggregate shall be crushed gravel, novaculite, or crushed stone.
b. Quality: Class D Quality or better shall be used for coarse aggregate
c. Gradation: The coarse aggregate base gradation shall be CA-7

### CONSTRUCTION METHODS

154606-3.1 GENERAL

The subbase material shall be obtained from approved resources and shall be handled in a manner that shall secure a satisfactory product.

154606-3.2 EQUIPMENT

The equipment required for this work shall be in accordance with applicable sections of Article 311.03 of Section 311 of IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2022. All equipment shall be approved by the Resident Engineer prior to the start of the work.

154606-3.3 PREPARING UNDERLYING COURSE

The underlying subgrade shall be free of ruts, objects and debris but shall not be proof rolled unless directed by the Resident Engineer. The final acceptance of the subgrade shall be approved by the Resident Engineer.

The granular drainage subbase shall be place on a separation fabric in accordance with ITEM 156513. The aggregate shall be placed in a manner to not damage the separation fabric. Grade

control shall be provided by the Contractor utilizing sting lines, checkboards or other suitable methods that will ensure the separation fabric is not damaged.

## 154606-3.4 PLACING AND SPREADING

The drainage layer shall be installed in layers at least 3 inches but no more than 6 inches of compacted thickness. The aggregate shall be spread by a spreader box or other approved device that shall spread the aggregate in the required amount to avoid or minimize the need for re-handling and to prevent rutting the underlying subgrade. Hauling over the un-compacted material shall not be permitted.

The Resident Engineer shall give the approval of the underlying course prior to the installation of the aggregate to ensure no material is placed on snow or soft/unsuitable subgrade.

## 154606-3.5 ROLLING AND COMPACTING

After spreading, the crushed aggregate shall be compacted by rolling. The rolling shall begin on one side and progress toward previously placed material by lapping uniformly each preceding rear wheel track by one-half the width of the track. Rolling shall continue until the stone is thoroughly set and the creeping of the stone ahead of the roller is no longer visible and to the satisfaction of the Resident Engineer.

The aggregate shall be mechanically tampered in areas not accessible by rollers.

## 154606-3.6 FINISHING OF SUBBASE

The aggregate shall be brought to its true shape and correct elevation, wetted, and rolled as directed by the Resident Engineer with a three wheel or tandem roller weighing between 6 and 10 tons and between 200 pounds per inch and 325 pounds per inch of the width of the roller.

The Contractor shall then test the aggregate for crown and elevation. Any portion lacking the required smoothness or failing in grade accuracy shall be scarified, reshaped, re-compacted and manipulated at the direction of the Resident Engineer. The finished surface shall not vary more than ½ inch from a 16 foot straight edge or shall not be more than 0.05 foot from the true grade. The subbase shall be moist at the time of placing subsequent base materials.

154606-3.7 TOLERANCE IN THICKNESS

The subbase shall be constructed to the thickness shown in the plans which shall be determined by depth tests taken at intervals no more the 400 square yards apart. In the event the depth test identifies a deficiency more than ½ inch thickness, the Contractor shall take measures to correct areas such as scarifying or adding base mixture, rolling, reshaping, ect, as approved by the Resident Engineer. The contractor shall replace, at no extra cost to the Contract, the subbase material where depth tests have been taken.

## METHOD OF MEASUREMENT

154606-4.1

The GRANULAR DRAINAGE SUBBASE 6" shall be paid for per cubic yard of subbase placed, complete and accepted.

## BASIS OF PAYMENT

154606-5.1

Payment will be made under the Contract unit price per square yards for Granular Drainage Subbase 6" and shall include all required materials, labor, and equipment necessary to complete the work to the satisfaction of the Resident Engineer.

Payment will be made under:

Item AR154606 Granular Drainage Subbase - 6"– per square yard.

PART 4 – BASE COURSES

## ITEM 208 AGGREGATE BASE COURSE

### DESCRIPTION

208-1.1

ADD: This item shall be constructed on a prepared underlying course in accordance with Plans and grades established and approved by the Resident Engineer. Aggregate Base Course shall be placed in lifts of limited thickness as required in the Standard Specifications and to the total compacted thickness shown in the plans.

### MATERIALS

208-2.3

DELETE: Gradation "CA 4" and "CA 10" from Table 1.

### CONSTRUCTION METHODS

208-3.9 (a)

DELETE: First sentence, REPLACE with:

The aggregate base for the pavement structure shall be compacted to not less than 100% of maximum density at optimum moisture as determined by compaction control tests specified for aircraft with gross weights of less than 60,000 lbs (Standard Proctor ASTM D698).

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

### METHOD OF MEASUREMENT

ADD the following section:

208-4.2: Separation (Geotextile) fabric shall be measured by the square yard.

### BASIS OF PAYMENT

208-5.1

ADD: Payment shall be made at the contract unit price per square yard as specified per the plans for Separation Fabric. No distinction shall be made between woven and non-woven fabric for the purpose of payment.

ADD: Payment will be made under:

Item AR156513 – Separation Fabric – per square yard.
Item AR801716 – Aggregate Base Course – Variable Depth – per square yard.

PART 6 – FLEXIBLE PAVEMENTS

## ITEM 401 – ASPHALT MIX PAVEMENT SURFACE COURSE

DESCRIPTION

401-1.1

This item shall include requirements prescribed in Illinois Division of Aeronautics Policy Memorandum 87-2, Density Acceptance of Bituminous Pavements, 87-4, Determination of Bulk Specific Density of Compacted Bituminous Mixes; 96-3 Requirements for Quality Assurance on Projects with Bituminous Concrete Paving, and; 2003-1 Requirements for Laboratory, Testing, Quality Control, and Paving of Superpave Bituminous Concrete Mixes for Airports, current issues.

COMPOSITION

401-3.1

ADD:

All proposed HMA mix designs must be approved by the IDOT Division of Aeronautics Mixtures Control Engineer before use.

401-3.2

ADD: This item shall be designed for taxing aircraft under 60,000 pounds.

CONSTRUCTION METHODS

401-4.10

ADD the following as the seventh paragraph to this section:

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

401-4.14

ADD the following as the second paragraph for this section:

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

## MATERIAL ACCEPTANCE

401-6.1

ADD: This item shall consist of placing bituminous surface course per Method II.

## BASIS OF PAYMENT

401-8.1

ADD:

Payment will be made under:

Item AR401614 – Bituminous Surface Course – Method II, Superpave - per ton.

## ITEM 401650 BITUMINOUS PAVEMENT MILLING

### DESCRIPTION

ADD the following:

401-1.2

Pavement milling necessary for butting new pavement with existing pavement to remain will be measured for pavement under this item. The work associated with Bituminous Pavement Milling is described in Item 101 of the IL Airport Construction Specifications.

### METHOD OF MEASUREMENT

ADD the following:

401-7.2

Pavement milling necessary for butting new pavement with existing pavement to remain will be measured for pavement under this item.

### BASIS OF PAYMENT

ADD the following:

401-8.1

Payment will be made under:

Item AR401650 – Bituminous Pavement Milling – per square yard.

## ITEM 401660 SAW AND SEAL BITUMINOUS JOINTS

### DESCRIPTION

401660-1.1

This work shall consist of adhesive joint filler to seal joints in existing and/or proposed bituminous pavement at locations shown on the plans and/or directed by the Resident Engineer.

### MATERIALS

401660-2.1

The joint sealing material shall be in accordance with ASTM D6690 – Type II.

### CONSTRUCTION METHODS

401660-3.1

All locations to be sawed and sealed shall be marked in a true line and sawed to the depth shown in the plans. Prior to filing, the joint shall be thoroughly cleaned and dried to the satisfaction of the Resident Engineer. The filler shall then be installed to depth shown in the plans and in accordance with the manufacturer's recommendations. The weather shall be not rainy or foggy and the atmospheric and pavement temperatures shall be above 50°F at the time of installation. No sealer shall be placed without the inspection and approval of the Resident Engineer immediately prior to the installation of the sealer.

The Contractor shall submit the procedures and equipment intended for the use of preparing and placing the joint sealing material and produce a joint sealer to the satisfaction of the Resident Engineer. Any joint sealer that does not meet the consistency requirements for application shall be rejected.

### METHOD OF MEASUREMENT

401660-4.1

The saw and seal bituminous joint filler shall be paid for per linear foot of sawed and sealed, complete and accepted.

### BASIS OF PAYMENT

401660-5.1

Payment will be made under the Contract unit price per linear foot for Saw and Seal Bituminous Joints and shall include all required materials, labor, and equipment necessary to complete the work to the satisfaction of the Resident Engineer

Payment will be made under:

Item AR401660 – Saw and Seal Bituminous Joints – per linear foot.

# ITEM 401900 REMOVE BITUMINOUS PAVEMENT

## DESCRIPTION

401900-1.1

This work shall consist of removing bituminous pavement as shown in the plans or as directed by the Resident Engineer regardless of pavement depth. The work associated with Bituminous Pavement removal is described in Item 101 of the IL Airport Construction Specifications.

## CONSTRUCTION METHODS

401900-2.1

The Contractor may use a power-operated mechanical scarifier, roto-mill, planing machine, grinder or other device to remove the asphalt surface in the area for Remove Pavement. However, this milling and disposal shall not be separately measured for payment, but shall be incidental to the Contract unit price for Remove Bituminous Pavement.

## METHOD OF MEASUREMENT

401900-3.1

The quantity of pavement removal shall be measured for payment by the number of square yards removed by the as specified, completed, and accepted by the Resident Engineer. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment.

## BASIS OF PAYMENT

401900-4.1

Payment will be made under the Contract unit price per square yard of Bituminous Pavement removal and shall include all required materials, labor, and equipment necessary to complete the work to the satisfaction of the Resident Engineer.

Payment will be made under:

Item AR401900 – Remove Bituminous Pavement – per square yard.

## ITEM 602 BITUMINOUS PRIME COAT

BASIS OF PAYMENT

602-5.1

ADD: Payment will be made under:

Item AR602510 – Bituminous Prime Coat – per gallon.

## ITEM 603 BITUMINOUS TACK COAT

### DESCRIPTION

603-1.1

ADD: This item shall consist of placing bituminous tack coat on the between lifts of bituminous pavement and along any vertical faces of existing pavement abutting new pavement.

### BASIS OF PAYMENT

603-5.1

ADD: Payment will be made under:

Item AR603510 – Bituminous Tack Coat – per gallon.

# ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE

## DESCRIPTION

610-1.1

ADD: This item shall include concrete used in the installation of roadway signs, drainage inlets, tie downs and other miscellaneous items that require structural PCC.

The cost of furnishing and installation of structural concrete shall be considered incidental to the contract unit price for the associated pay item. The prices shall be full compensation for furnishing all materials and / or preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item.

The contractor must provide the necessary submittals for the structural concrete including constituent materials of the mix, rebar, joint materials, curing materials, etc. prior to incorporating the structural concrete into the work. No payment will be made for the associated pay items until satisfactory submittal documentation has been provided.

The proposed PCC mix design must be approved by the IDOT Division of Aeronautics Mixtures Control Engineer before use.

# ITEM 620 PAVEMENT MARKING

## MATERIALS

620-2.1

ADD:

Item shall follow the acceptance procedures outlined in the Illinois Department of Transportation, Aeronautics Policy Memorandum (PM) 97-2 *Pavement Marking Paint and Glass Beads Acceptance.*

620–2.2 PAINT

ADD:

All paint shall be waterborne.

## CONSTRUCTION METHODS

620–3.3 PREPARATION OF SURFACE

ADD: Existing marking that is to be re-painted shall be cleaned using low pressure water blasting, sand blasting or grinding. Water blasting equipment shall have adjustable pressure output so as to prevent damage to the pavement.

ADD: The Contractor shall take care so as not to damage pavement during surface preparation activities. Multiple surface preparation methods may be required including water blasting pressure variations, sand blasting and/or pavement grinding to determine the optimum method for each pavement surface type or condition. Shot blasting shall not be used.

620–3.7 PAVEMENT MARKING REMOVAL

ADD: The Contractor shall take care so as not to damage pavement during pavement marking removal activities. Multiple removal methods may be required including water blasting pressure variations, sand blasting and/or pavement grinding to determine the optimum method for each pavement surface type or condition. Shot blasting shall not be used.

ADD:
620–3.9 CLEANUP

The Contractor shall remove from the work area all debris, waste, loose or unadhered reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

## METHOD OF MEASUREMENT

620–4.1

ADD: No distinction will be made between color of paint for payment purposes.

ADD: The quantity of pavement marking to be paid for shall be the number of square feet of surface covered with paint and beads, completed and accepted by the Resident Engineer. Measurement shall not be made separately for each paint application.

ADD: Black paint will not be measured separately for payment. All black paint shall be considered incidental to the associated white pavement marking.

ADD:

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

## BASIS OF PAYMENT

620–5.1

ADD: Payment will be made under:

Item AR620520 – Pavement Marking – Waterborne – per square foot.

PART 11 – DRAINAGE

## ITEM 701 PIPE FOR STORM SEWERS AND CULVERTS

### MATERIALS

701-2.1

DELETE: Entire Section.

ADD:

Pipe shall be of the type and diameter indicated and installed at the locations shown on the plans. Pipe for storm sewers shall be concrete storm sewer pipe Class IV reinforced concrete conforming to ASTM C-76 (with joints meeting ASTM C-443) as called out in the plans.

### CONSTRUCTION METHODS

701-3.6

ADD:

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

701-3.7

ADD:

Pipe removal under proposed pavement areas shall be backfilled per Section 701-3.5. Openings due to pipe removals at existing drainage structures to remain shall be patched with brick and mortar as directed by the Engineer at no additional cost to the contract.

### BASIS OF PAYMENT

701-5.1

ADD: Payment will be made under:

Item AR701412 – 12" RCP, Class III – per linear foot.
Item AR701418 – 18" RCP, Class III – per linear foot.
Item AR701424 – 24" RCP, Class III – per linear foot.
Item AR701900 – Remove Pipe – per linear foot.

## ITEM 705 PIPE UNDERDRAINS FOR AIRPORTS

Basis of Payment

705-5.1

ADD: Payment will be made under:

Item AR705506 – 6" Perforated Underdrain – per linear foot.
Item AR705548 – 8" Non-Perforated Underdrain – per linear foot.
Item AR705640 – Underdrain Cleanout – per each.

# ITEM 751 MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

## DESCRIPTION

751-1.1

ADD:

Specifically, this item consists of the construction of manholes, inlets, adjustments and cored connections into existing structures as shown on the plans or as directed by the Engineer.

## CONSTRUCTION METHODS

751-3.1

ADD:

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

## BASIS OF PAYMENT

751-5.1

ADD: Payment will be made under:

Item AR751411 – Inlet - Type A – per each.
Item AR751540 – Manhole 4' – per each.
Item AR751906 – Remove Catch Basin – per each.
Item AR751940 – Adjust Inlet – per each.

## PART 12 – TURFING

### ITEM 901 SEEDING

### BASIS OF PAYMENT

901-5.1

ADD: Payment will be made under:

Item AR901510 – Seeding – per acre.

## ITEM 905 TOPSOIL

BASIS OF PAYMENT

905-5.1

ADD: Payment will be made under:

Item AR905510 – Topsoiling (From On Site) – per cubic yard.

## ITEM 908 MULCHING

### MATERIALS

908-2.1

REVISE First sentence to read:

Material used for mulching shall be Manufactured Hydraulic Mulch.

### BASIS OF PAYMENT

908-5.1

ADD: Payment will be made under:

Item AR908510– Mulching – per acre.

PART 13 – ELECTRICAL

## ITEM 101 AIRPORT ROTATING BEACONS

101-2.2

REVISE First Sentence to read:

The beacon shall be a Type L-801A Class 2 beacon as specified in the contract documents meeting the requirements of the current Federal Aviation Administration Advisory Circular (AC) 150/5345-12, *Specification for Airport and Heliport Beacons.*

101-3.12:

REVISE Section to read:

Unless otherwise specified, the Contractor shall install on the top of the beacon tower or mounting platform two (2) L-810 obstruction lights on opposite corners. These lights shall be mounted on conduit extensions to a height of not less than four (4) inches (100 mm) above the top of the beacon.

BASIS OF PAYMENT

101-5.1

ADD:

Payment will be made under:

Item AR101510 – Airport Rotating Beacon – per each.
Item AR101900 – Beacon Removal – per each.

# ITEM 103 AIRPORT BEACON TOWERS

Description

103-1.1

REVISE Section to read:

This item shall consist of furnishing and installing an airport beacon tower of the type shown in the plans, per these specifications. This work shall include the clearing of the site, construction of the foundation, erection of the tower, installation of lightning protection, painting, and all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the Resident Engineer. See advisory circular (AC) 150/5340-30 for additional installation information about airport beacon towers.

Equipment and Materials

103-2.2

REVISE Section to read:

The beacon tower shall be a 30 ft tip-down pole meeting the requirements of the current Federal Aviation Administration Advisory Circular (AC) 150/5340-30, *Design and Installation Details for Airport Visual Aids*.

Basis of Payment

103-5.1

REPLACE Section to read:

Payment for all items described in this section shall be paid under Item AR101510 – Airport Rotating Beacon.

## ITEM 109 AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

Description

109-1.1

REPLACE first Sentence with:

This item shall consist of modifying an existing panelboard to install a new circuit breaker for the airport rotating beacon and connection of the associated circuit(s).

ADD:

Payment will be made under:

Item AR109210 – Vault Modifications – per lump sum.

## ITEM 110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

110-5.1

ADD:

Payment will be made under:

Item AR801715 – New Concrete Encased 1-2" SCH 40 PVC with (2) CU #8 AWG and (1) #8 CU AWG GND – per linear foot.
Item AR110949 – Adjust Cable Markers – per each.

## ITEM 115 ELECTRICAL MANHOLES AND JUNCTION STRUCTURES

115-5.1

ADD:

Payment will be made under:

Item AR801714 – Provide and Install New H-20 Load Rated Concrete Handhole – per each.

## ITEM 125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

Equipment and Materials

125-2.12

Delete: REPLACE entire section with:

Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A or 1B, or L-868, Class 1A or 1B, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures. Provide with grounding lug as shown on the drawing. The Contractor is required to maintain an adequate supply of grade adjustment shims on the project site at all times.

125-2.13

Delete: REPLACE entire section with:

Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

125-2.16 Hardware

ADD the following section:

All bolts, nuts, washers and lock washers shall be stainless steel. Install using Loctite® Threadlocker Blue 242, Permatex® Medium Strength Threadlocker Blue, or approved equal.

125-2.17 Plug And Receptacle Cable Connectors

ADD the following section:

L-823, Type I, Class A, meeting the requirements of FAA AC 150/5345-26, current edition.

Basis of Payment

125-5.1

ADD:

Payment will be made under:

Item AR125100 – Elevated Retroreflective Marker – per each.
Item AR125912 Remove Retroreflective Marker – per each.

Appendix A
IDA Memorandums

State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

| | | |
|---|---|---|
| February 20, 2014 | Springfield | Number: 87-2 |

TO: CONSULTING ENGINEERS

SUBJECT: DENSITY ACCEPTANCE OF BITUMINOUS PAVEMENTS

I. Introduction

This Policy Memorandum deals with the implementation of the bituminous density quality assurance specifications as outlined in the Standard Specifications for Construction of Airports, Sections 401-4.15 and 403-4.15.

II. Sampling

After completion of compaction and when the pavement has reached ambient temperature, the paved area shall be divided into Sublots of 500 tons per type of mix. One core sample (2 cores per sample) shall be taken from each Sublot. The longitudinal and transverse location for each sample shall be determined by use of a random number "Deck" provided by the Division. No core shall be taken closer than two (2) feet from the edge of the mat. A core extraction device shall be used to obtain all cores from the mat. All cores are to be taken by the contractor under the supervision and remain in the possession of the Engineer. It is imperative that the Engineer and the contractor realize that the cores are "money" and that improper coring, extraction, shipping and/or testing can be costly.

One mix sample per 1000 tons of mix laid shall be taken for Extraction, Maximum Specific Gravity ($G_{mm}$) and Air Void tests. The mix samples shall be sampled by the contractor and split in half.

The Resident Engineer shall randomly designate and send the split samples to an independent laboratory for testing. The laboratory will be verified to be ASTM- certified for all the required testing and be contracted through the Consultant. The frequency of testing split samples shall be 1 per 5000 tons. Higher frequencies may be necessary if the contractor’s tests, and/or mix quality control are inconsistent.

III. Testing

All cores shall be tested for Bulk Specific Gravity ($G_{mb}$) in accordance with ASTM D2726 using Procedure 10.1, "For Specimens That Contain Moisture." The Theoretical Maximum Gravity ($G_{mm}$) shall be determined according to ASTM D2041. From these tests the in-place air voids of the compacted pavement are calculated according to ASTM

D3203 for "dense bituminous paving mixtures." Selection of the proper $G_{mm}$ shall be based on a running average of four (4) tests per Lot.

E.g. Lot 1 - Use the average of the two (2) tests for Lot 1.
Lot 2 - Use the average of the four (4) tests from Lots 1 and 2.
Lot 3 - Use the average of the four (4) tests from Lots 2 and 3.

NOTE: When more than four (4) Sublots are used, still use a running average of four (4) tests per Lot.

IV. Acceptance Calculations

The first step in calculating the quantities for pay is to calculate the Mean ($\overline{X}$) and the Standard Deviation (S) of the Sublot tests. From this data the Lot samples should first be tested for outliers. After consideration for outliers, the Percent Within Tolerance (PWT) and the Percent Within Limits (PWL) are calculated to determine the final pay quantities for the Lot.

EXAMPLE

1. Test Data
   Lot Quantity = 2000 tons
   Sublot Test 1 = 4.35 % Air Voids
   Sublot Test 2 = 3.96 % Air Voids
   Sublot Test 3 = 6.75 % Air Voids
   Sublot Test 4 = 6.25 % Air Voids

2. Calculating the Mean and Standard Deviation

| Sublot | $X$ | $(X - \overline{X})$ | $(X - \overline{X})^2$ |
|---|---|---|---|
| 1 | 4.35 | -0.978 | 0.956 |
| 2 | 3.96 | -1.368 | 1.871 |
| 3 | 6.75 | 1.422 | 2.022 |
| 4 | 6.25 | 0.922 | 0.850 |
| Sum = | 21.31 | | 5.699 |

N = 4

Mean $(\overline{X})$ = 21.34 / 4 = 5.328

Variance $(S)^2 = \text{Sum}\ \frac{(X - \overline{X})^2}{3} = \frac{5.699}{3} = 1.900$

Standard Deviation S = $\sqrt{1.900}$ = 1.378

3. Test for Outliers

Check for Critical "T" Values

$$T = \left|\frac{(X_1 - \overline{X})}{S}\right|^* = \left|\frac{3.96 - 5.328}{1.378}\right| = 0.99$$

* Difference between the suspect test value ($X_1$) and the Mean ($\overline{X}$).

If the T value exceeds the critical "T" Value in the table below and no assignable cause can be determined for the outlier, discard the suspected test measurement and obtain another random sample from the Sublot in question. If the new test exceeds the Mean ($\overline{X}$) in the same direction from the Mean as the suspected test, recalculate the T value including all tests (original test, suspected test, and new test) for an outlier and for computing final payment.

TABLE OF CRITICAL "T" VALUES

| Number of observations (N) | Critical "T" Value 5% Significance Level |
|---|---|
| 3 | 1.15 |
| 4 | 1.46 |
| 5 | 1.67 |
| 6 | 1.82 |
| 7 | 1.94 |
| 8 | 2.03 |
| 9 | 2.11 |
| 10 | 2.18 |
| 11 | 2.23 |
| 12 | 2.29 |

Based on the above table, the "T" value of 0.99 does not exceed the Critical "T" Value of 1.46 for N = 4. Therefore, the value (3.96) is not an outlier and shall be used in calculating the Lot payment.

4. Calculation of Lot Payment

To calculate the Lot Payment use the Acceptance Criteria as outlined under Item 401-4.15(c) or Item 403-4.15(c).

$$Q_L = \frac{(\overline{X} - 1)}{S} = \frac{5.328 - 1}{1.378} = 3.141$$

$$Q_u = \frac{(7 - \overline{X})}{S} = \frac{7 - 5.328}{1.378} = 1.213$$

From this data the Percentage Within Tolerance (PWT) for both the lower and upper tolerance limits is determined by Table 6 (see Item 401 Bituminous Surface Course and/or Item 403 Bituminous Base Course in the Standard Specifications) for the number (N) of samples tested.

Eq. PWT (lower) = 99.0%
PWT (upper) = 90.4%

We now calculate the Percent Within Limits (PWL) for the Lot.

PWL = [PWT (lower)] + [PWT (upper)] - 100
PWL = (99.0 + 90.4) - 100 = 89.4%

Using Table 5, the % Adjustment in Lot Quantity is:

% Adjustment = 0.5 PWL + 55.0
% Adjustment = 0.5 (89.4) + 55.0
% Adjustment = 99.7

Adjusted Quantities = % Adjustment x Lot Quantities
Adjusted Quantities = 0.997 x 2000 tons
Adjusted Quantities = 1994 tons

5. Resampling and Retesting

The contractor has the right to request the resampling and retesting of a complete Lot. This privilege is only allowed once for each Lot and must be requested in writing by the contractor within 48 hours of receiving the official report from the Engineer.

6. Reporting

After completion of the tests for each Lot, the Engineer shall complete the necessary calculations for final adjustment in quantities on the Form AER-1 and have both the Engineer and the Contractor sign the report for copying to both the FAA and IDOA.

Steven J. Long, P.E. Acting Chief Engineer

Supersedes Policy Memorandum 87-2, dated April 1, 2010

State of Illinois
Department of Transportation
Division of Aeronautics

**POLICY MEMORANDUM**

December 3, 2020 | Springfield | Number: **87-4**

TO: CONSULTING ENGINEERS

SUBJECT: DETERMINATION OF BULK SPECIFIC GRAVITY (d)
OF COMPACTED BITUMINOUS MIXES

A. SCOPE. This method of test covers the determination of the bulk specific gravity and the percent air, of core samples from compacted bituminous mixtures using a saturated surface-dry procedure.

B. DEFINITIONS.

1. Bulk Specific Gravity ($G_{mb}$) ASTM 2726 or density is the weight per unit volume (gms/cc) of a mixture in its existing state of consolidation. The volume measurement for this specific gravity will include the volume of all the aggregate, asphalt, and air spaces (voids) in the aggregate particles and between the aggregate particles.

2. Theoretical Maximum Specific Gravity ($G_{mm}$) ASTM 2041 is the weight per unit volume (grams/cc) of a mixture assuming complete consolidation; i.e., all the air spaces (voids) between the aggregate particles are eliminated.

3. Percent Density is a measure of the degree of compaction in relation to the Theoretical Maximum Specific Gravity.

4. Percent Air is a measure of the air voids in the compacted pavement.

C. APPARATUS.

1. Balance - The balance shall be accurate to 0.1 gm throughout the operating range. It may be mechanical or electrical and shall be equipped with a suitable suspension apparatus and holder to permit weighing of the core in water while suspended from the balance. If the balance is a beam type, it shall be set up so that the core is placed in the basket that is suspended from the zero (0) end of the balance arm.

2. Water bath - The container for immersing the core in water while suspended from the balance shall be equipped with an overflow outlet for maintaining a constant water level. This water bath should be large enough to handle full-depth cores. When testing several cores at the same time, a dish-pan, sink or suitable container may be used for soaking.

D. PROCEDURE.

1. Prior to testing, cores shall be sorted on a flat surface in a cool place. The sample(s) shall be brushed with a wire brush and/or other suitable means, to remove all loose and/or foreign materials, such as seal coat, tack coat, foundation material, soil, paper and foil prior to testing.

2. If a core contains binder and surface or multiple lifts, the lifts shall be separated. This may be done in the following manner:

   a. Mark the separation line between the two lifts.

   b. Place the core in a freezer for 20-25 minutes.

   c. Place a 2 or 3-inch wide chisel on the separation line and tap with a hammer. Rotate the core and continue this process until the core separates. Brush loose pieces with a wire brush if needed.

   d. Allow 2-3 hours for the core to return to ambient temperature before proceeding.

3. Prepare the water baths for soaking and weighing with water at 77$^{o}$ F. Water baths should be maintained at this temperature throughout testing. Saturate the cores by submerging in the water for a minimum of 20 minutes.

4. With the balance and water bath properly assembled and zeroed, suspend the sample from the balance and submerge it in the water bath. The core must be placed with the original top and bottom in a vertical position. If necessary, add sufficient water to bring the water level up to the overflow outlet. Permit any excess to overflow. Read and record the Saturated Submerged Weight. Designate this weight as (C).

5. Remove the core from the water bath and blot the excess water from the surface of the core with an absorbent cloth or other suitable material. This must be done quickly to prevent the internal water from escaping.

6. Place the core on the balance and read and record the Saturated Surface-dry Weight in air. Designate this weight as (B).

7. Place the core in a tared pan and dry in an oven. When the core is dry (less than 0.5 gm loss in one hour), record the weight and subtract the pan weight. Designate this weight as (A).

8. The following calculation is used to determine the Bulk Specific Gravity of the core.

$$G_{mb} = \frac{A}{B - C}$$

$G_{mb}$ = Bulk Specific Gravity
A = Oven dry weight
B = Saturated surface-dry weight
C = Saturated submerged weight

E. PERCENT DENSITY. The following calculation is used to determine the percent density of the core:

$$\% \text{ Density} = 100 \times \frac{G_{mb}}{G_{mm}}$$

$G_{mb}$ = Bulk Specific Gravity
$G_{mm}$ = Theoretical Maximum Gravity*

Note: The Theoretical Maximum Gravity ($G_{mm}$) is determined from the mix design until current Vacuum Pycnometer test are available.

F. PERCENT AIR. To calculate the percent air, use the following formula:

% Air = 100 - % Density

G. WEIGHT PER SQUARE YARD OF COMPACTED MIXTURE. The actual weight per square yard of a compacted mixture can be calculated by using the Bulk Specific Gravity ($G_{mb}$). The volume of a square yard of pavement one (1) inch thick is 0.75 cubic foot. Taking the weight of a cubic foot of water as 62.37 pounds, one square yard of compacted material, one (1) inch thick weighs:

Pounds / Sq. Yd. (1" thick) = $0.75 \times 62.37 \times G_{mb}$

Alan D. Mlacnik, P.E.
Bureau Chief of Airport Engineering

Supersedes Policy Memorandum 87-4, dated February 20, 2014

State of Illinois
Department of Transportation
Division of Aeronautics

**POLICY MEMORANDUM**

| April 1, 2010 | Springfield | Number 96-1 |
|---|---|---|

TO: CONSULTING ENGINEERS

SUBJECT: ITEM 610, STRUCTURAL PORTLAND CEMENT CONCRETE: JOB MIX FORMULA APPROVAL & PRODUCTION TESTING.

I. This policy memorandum addresses the Job Mix Formula (JMF) approval process and production testing requirements when Item 610 is specified for an airport construction contract.

II. PROCESS

a. The contractor may submit a mix design with recent substantiating test data or he may submit a mix design generated by the Illinois Division of Highways with recent substantiating test data for approval consideration. The mix design should be submitted to the Resident Engineer.

b. The Resident Engineer should verify that each component of the proposed mix meets the requirements set forth under Item 610 of the *Standard Specifications for Construction of Airports* and/or the contract special provisions.

c. The mix design should also indicate the following information:

1. The name, address, and producer/supplier number for the concrete.
2. The source, producer/supplier number, gradation, quality, and SSD weight for the proposed coarse and fine aggregates.
3. The source, producer/supplier number, type, and weight of the proposed flyash and/or cement.
4. The source, producer/supplier number, dosage rate or dosage of all admixtures.

d. After completion of Items b and c above, the mix with substantiating test data shall be forwarded to the Division of Aeronautics for approval. Once the mix has been approved, the production testing shall be at the rate in Section III as specified herein.

III. PRODUCTION TESTING

a. One set of cylinders or beams, depending on the strength specified, shall be cast for acceptance testing for each day the mix is used. In addition, at least one slump and one air test shall be conducted for each day the mix is used. If more than 100 c.y. of the mix is placed in a given day, additional tests at a frequently of 1 per 100 c.y. shall be taken for strength, slump, and air. The concrete shall have a maximum slump of three inches (3") and minimum slump of one inches (1") when tested in accordance with ASTM C-143. The air content of the concrete shall be between 5% and 8% by volume. At no time shall the temperature of the concrete exceed 90 degrees Fahrenheit.

b. If the total proposed amount of Item 610 Structural Portland Cement Concrete as calculated by the Resident Engineer is less than 50 c.y. for the entire project, the following shall apply:
   - The Resident Engineer shall provide calculations of the quantity of Item 610 to the Division of Aeronautics.
   - One set of cylinders or beams, depending the strength specified, shall be cast for acceptance testing.
   - One air content and one slump test shall be taken for acceptance testing.
   - The concrete shall have a maximum slump of three inches (3") and minimum of one inch (1") when tested in accordance with ASTM C-143. The air content of the concrete shall be between 5% and 8% by volume. At no time shall the temperature of the concrete exceed 90 degrees Fahrenheit.

c. The Resident Engineer shall collect actual batch weight tickets for every batch of Item 610 concrete used for the project. The actual batch weight tickets shall be kept with the project records and shall be available upon request of the Department of Transportation.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 96-1 dated January 1, 2004

State of Illinois
Department of Transportation
Division of Aeronautics

**POLICY MEMORANDUM**

| December 3, 2020 | Springfield, Illinois | Number 96-3 |
|---|---|---|

TO: CONSULTING ENGINEERS

SUBJECT: REQUIREMENTS FOR QUALITY ASSURANCE ON PROJECTS WITH BITUMINOUS CONCRETE PAVING

I. SCOPE

The purpose of this policy memorandum is to define to the Consulting Engineer the requirements concerning Quality Assurance on bituminous concrete paving projects. Specifically, this memo applies whenever the Contractor is required to comply with the requirements set forth in Policy Memorandum 2003-1, "*Requirements for Laboratory, Testing, Quality Control, and Paving of Bituminous Concrete Mixtures*".

II. LABORATORY APPROVAL

The Resident Engineer shall review and approve the Contractor's plant laboratory to assure that it meets the requirements set forth in the contract specifications and Policy Memorandum 2003-1. This review and approval shall be completed prior to utilization of the plant for the production of any mix.

III. QUALITY ASSURANCE DURING PRODUCTION PAVING

A. The R.E. shall perform sample tests at a rate of 1/5000 tons randomly selected by the R.E. and shall be sent with an identification sheet (Form AER 24, Sample Identification) to an ASTM certified independent laboratory. designated by the Division of Aeronautics. If the project is < 5000 tons, 1 sample selected randomly shall be sent.

Sample preparation, sample size and number of samples shall be according to Policy Memorandum, "*HMA Comparison Samples*".

B. At the option of the Engineer, additional independent assurance tests may be performed on split samples taken by the Contractor for Quality Control testing. In addition, the Resident Engineer shall witness the sampling and splitting of these samples at the start of production and as needed throughout mix production. The Engineer may select any or all split samples for assurance testing. These tests may be performed at any time after sampling. The test results will be made available to the Contractor as soon as they become available.

C. The Resident Engineer may witness the sampling and testing being performed by the Contractor. If the Resident Engineer determines that the sampling and Quality Control tests are not being performed according to the applicable test procedures, the Engineer may stop production until corrective action is taken. The Resident Engineer will promptly notify the Contractor, both verbally and in writing, of observed deficiencies. The Resident Engineer will document all witnessed samples and tests. The Resident Engineer may elect to obtain samples for testing, separate from the Contractor's Quality Control process, to verify specification compliance.

1. Differences between the Contractor's and the Engineer's split sample test results will be considered acceptable if within the following limits:

| Test Parameter | Acceptable Limits of Precision |
|---|---|
| % Passing | |
| 1/2 in. | 5.0 % |
| No. 4 | 5.0 % |
| No. 8 | 3.0 % |
| No. 30 | 2.0 % |
| No. 200 | 2.2 % |
| Asphalt Content | 0.3 % |
| Maximum Specific Gravity ($G_{mm}$) of Mixture | 0.026 |
| Bulk Specific Gravity ($G_{mb}$) of Gyratory Brix | 0.045 |

2. In the event a comparison of the required plant test results is outside the above acceptable limits of precision, split or independent samples fail the control limits, an extraction indicates non-specification mix, or a continual trend of difference between Contractor and Engineer test results is identified, the Engineer will immediately investigate. The Engineer may suspend production while the investigation is in progress. The investigation may include testing by the Engineer of any remaining split samples or a comparison of split sample test results on the mix currently being produced. The investigation may also include review and observation of the Contractor's technician performance, testing procedure, and equipment. If a problem is identified with the mix, the Contractor shall take immediate corrective action. After corrective action, both the Contractor and the Engineer shall immediately resample and retest.

C. The Contractor shall be responsible for documenting all observations, records of inspection, adjustments to the mixture, test results, retest results, and corrective actions in a bound hardback field book or bound diary which will become the property of IDA upon completion and acceptance of the project. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the Contractor's Consultants, or the producer of bituminous mix material. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

Results of adjustments to mixture production and tests shall be recorded in duplicate and sent to the Engineer.

IV. ACCEPTANCE BY ENGINEER

Density acceptance shall be performed according to the Standard Specifications for Construction of Airports, section 401-6.1 or according to the acceptance procedure outlined in the Special Provisions.

Alan D. Mlacnik, P.E.
Bureau Chief of Airport Engineering

Supersedes Policy Memorandum 96-3, dated February 20, 2014

State of Illinois Department of
Transportation Division of
Aeronautics

**POLICY MEMORANDUM**

| December 3, 2020 | Springfield, Illinois | Number 97-2 |
|---|---|---|

TO: CONSULTING ENGINEERS

SUBJECT: PAVEMENT MARKING PAINT AND GLASS BEADS ACCEPTANCE

I. SCOPE

The purpose of this policy memorandum is to define the procedure for acceptance of pavement marking paint and glass beads.

II. RESIDENT ENGINEER'S DUTIES

The Resident Engineer shall follow the acceptance procedure outlined as follows:

A. Require the contractor to furnish the name of the paint and glass beads manufacturer, IDOT Test I.D. number and the Batch/Lot number proposed for use prior to beginning work. Notify the I.D.A. Materials Certification Engineer when this information is available.

B. Require the manufacturer's certification before painting begins. Check the certification for compliance to the contract specifications.

1. The certification shall be issued from the manufacturer and shall include the specification and the batch number.

2. The paint containers shall have the manufacturer's name, the specification and the batch number matching the certification.

C. If no batch number is indicated on the certification or containers, sample the paint according to the procedure for the corresponding paint type.

D. If the I.D.A. Engineer of Materials indicates that batch number has not been previously sampled and tested, sample the paint according to the procedure for the corresponding paint type. The Division of Aeronautics will provide paint cans upon request by the Resident Engineer. Samples will only be taken in new epoxy lined cans and lids so that the paint will not be contaminated. It is important to seal the sample container immediately with the paint can lid to prevent the loss of volatile solvents.

Mark the sample cans with the paint color, manufacturer's name, and batch number. The paint samples and manufacturer's certification shall be placed in the mail or delivered within 24 hours after sampling. Address or deliver the samples to the Material's Certification Engineer at:

Illinois Department of Transportation
Division of Aeronautics
One Langhorne Bond Drive
Springfield, Illinois 62707

Sampling Procedures for Each Paint Type:

1. Waterborne or Solvent Base Paints
   a. A sample consists of one-pint cans taken per batch number. Before drawing samples, the contents of the component's container must be thoroughly mixed to make certain that any settled portion is fully dispersed.
   b. Be sure to indicate to the contractor that acceptance of material is based upon a passing test of the paint material.

2. Epoxy Paint
   a. Take separate one-pint samples of each paint component prior to marking. Before drawing samples, the contents of each component's container must be thoroughly mixed to make certain that any settled portion is fully dispersed. **Do not combine the two components or sample from the spray nozzle.**
   b. Be sure to indicate to the contractor that acceptance of material is based upon a passing test of the paint material.

III. TESTING

The paint will be tested for acceptance by the IDOT Bureau of Materials and Physical Research for conformance to the contract specifications.

Alan D. Mlacnik, P.E.
Bureau Chief of Airport Engineering

Supersedes policy memorandum 97-2 dated June 22, 2018

State of Illinois
Department of Transportation
Division of Aeronautics

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**POLICY MEMORANDUM**

| December 3, 2020 | Springfield, Illinois | Number: 2001-1 |
|---|---|---|

TO: CONTRACTORS

SUBJECT: REQUIREMENTS FOR COLD WEATHER CONCRETING

I. PURPOSE

A. This policy memorandum outlines the minimum requirements for cold weather concreting. Cold weather is defined as whenever the average ambient air temperature during day or night drops below 40 F.

II. COLD WEATHER CONCRETING PLAN

A. The contractor shall submit a cold weather concreting plan to the Engineer for approval. Cold weather concreting operations are not allowed to proceed until the contractor's cold weather concreting plan has been approved by the Engineer.

B. The contractor's plan shall comply with this memorandum and shall address, as a minimum, the following:

1. Concrete Mix Manufacturing
2. Concrete Mix Temperature Monitoring
3. Base Preparation
4. Concrete Curing and Protection
5. In Place Concrete Temperature Monitoring
6. Strength Test Specimens

III. MINIMUM REQUIREMENTS

A. Concrete Mix Manufacturing

1. The contractor must make the necessary adjustments so that the concrete temperature is maintained from 50 F to 90 F for placement. Acceptable methods include:

a) Heating the mixing water Note: If the mixing water is to be heated to a temperature above 100 F, the contractor must include a mixing sequence plan to indicate the order that each component of the mix is to be charged into the mixer.

b) Heating the aggregates Note: The exact method of heating the aggregates shall be included as part of the cold weather concreting plan. Aggregates must be free of ice and frozen lumps. To avoid the possibility of a quick or flash set of the concrete, when either the water or aggregates are heated to above 100 F, they should be combined in the mixer first before the cement is added.

B. Concrete Mix Temperature

1. The contractor shall monitor the mix temperature at the plant and prior to placement in the forms. Mix that does not meet the temperature requirement of 50 F to 90 F shall be rejected for use on the project.

C. Base Preparation

1. Paving or placing concrete on a frozen base, subbase, or subgrade is prohibited.

2. The base, subbase, or subgrade on which the concrete is to be placed shall be thawed and heated to at least 40 F. The method by which the base subbase or subgrade is to be heated shall be indicated in the contractor's cold weather concreting plan. Insulating blankets or heated enclosures may be required.

D. Concrete Protection and Curing

1. In addition to the curing options available in article 501-4.13 (a) (b), (c), (d), and (e) of the Standard Specifications for Construction of Airports, the contractor shall protect the concrete in such a manner as to maintain a concrete temperature of at least 50 F for 7 days.

2. The method of concrete protection shall be by use of insulating layer or heated enclosure around the concrete. The method of protection shall be indicated in the contractor's cold weather concreting plan. When insulating layers are to be used, the thermal resistance to heat transfer (R Value in $F*hr*ft^2/BTU$) of the insulation material selected, shall be appropriate for the slab thickness being constructed and shall be indicated in the cold weather concreting plan.

3. Appendix A shows a chart and table taken from the American Concrete Institute specification, ACI 306 R Cold Weather Concreting, which may be used by the contractor in selecting the proper insulation (R Value) and insulating material which may be used.

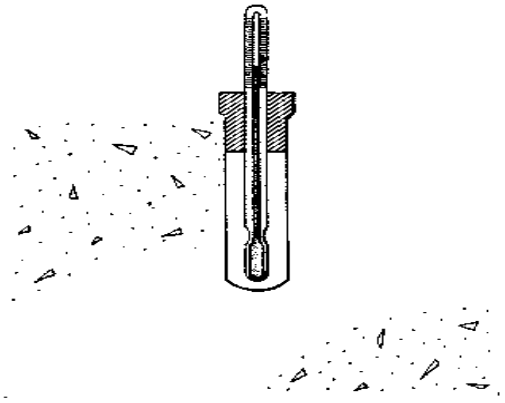
E. In-Place Concrete Temperature Monitoring

1. Once the concrete is in place, the protection method used, must ensure that the concrete temperature does not fall below 50 F for the time period specified in Section (D. 1.) of this Policy Memorandum (7 days).

2. The concrete temperature on the surface and below the surface must be monitored and recorded by the contractor for the duration of the protection period in Section (D. 1.).

3. After the concrete has hardened, surface temperature can be checked with special surface thermometers or with an ordinary thermometer that is kept covered with insulating blankets. The high and low values for each 24-hour period of protection must be measured and recorded.

4. One acceptable method of checking temperature below the concrete surface is given in the Portland Cement Association (PCA) book entitled “Design and Control of Concrete Mixtures” latest edition. The method is indicated below and it should be noted that the thermometer should be capable of recording high and low values for a given 24-hour period.



5. The exact method for surface and sub-surface concrete temperature monitoring shall be indicated in the contractor’s cold weather concreting plan. The maximum permissible difference between the interior and surface temperature is 35 F. Adjustments in protection method shall be implemented if the maximum permissible difference is exceeded.

F. Strength specimen handling

1. The Contractor is responsible for making, transporting, and curing all samples (beams or cylinders)
2. The Contractor is required to load the testing machine and dispose of the broken pieces.
3. Onsite, indoor curing facilities, meeting the requirements of ASTM C-31, shall be required for cold weather concreting operations.

4. Sampling for strength specimens shall be according to the Contract Special Provisions. Sampled concrete shall be transported to the indoor curing facilities for the casting of strength specimens.

5. The exact location and description of the curing facilities shall be indicated in the contractor's cold weather concreting plan.

6. The method of transporting concrete sampled from the grade to the curing facilities for casting shall be indicated in the contractor's cold weather concreting plan.

Alan D. Mlacnik, P.E.
Bureau Chief of Airport Engineering

Supersedes Policy Memorandum 2001-1 dated January 1, 2004

# APPENDIX A

**Minimum exposure temperatures for concrete flatwork placed on the ground for concrete placed & surface temperature maintained at 50 F (10 C) for 3 days on ground at 35 F (2 C)**

| Slab thickness, in. (m) | Minimum ambient air temperature, deg F (deg C) allowable when insulation having these values of thermal resistance **R**, hr-ft$^2$-F/Btu (m$^2$-K/W), is used | | | |
|---|---|---|---|---|
| | **R** = 2 (0.35) | **R** = 4 (0.70) | **R** = 6 (1.06) | **R** = 8 (1.41) |
| Cement content = 300 lb/yd2 (178 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | * | * | * | * |
| 18 (0.46) | 42 (6) | 38 (3) | 32 (0) | 26 (-3) |
| 24 (0.61) | 37 (3) | 25 (-4) | 11 (-12) | -3 (-19) |
| 30 (0.76) | 31 (-1) | 15 (-9) | -1 (-18) | -17 (-27) |
| 36 (0.91) | 31 (-1) | 12 (-11) | -5 (-21) | -22 (-30) |
| Cement content = 400 lb/yd2 (237 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | 46 (8) | 44 (7) | 42 (6) | 40 (4) |
| 18 (0.46) | 36 (2) | 22 (-6) | 8 (-13) | -6 (-21) |
| 24 (0.61) | 28 (-2) | 9 (-13) | -10 (-23) | -29 (-34) |
| 30 (0.76) | 21 (-6) | 0 (-18) | -21 (-29) | -42 (-41) |
| 36 (0.91) | 21 (-6) | -4 (-20) | -29 (-34) | -50 (-46) |
| Cement content = 500 lb/yd2 (296 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | 42 (6) | 36 (2) | 30 (-1) | 24 (-4) |
| 18 (0.46) | 30 (-1) | 12 (-11) | -6 (-21) | -22 (-30) |
| 24 (0.61) | 21 (-6) | -5 (-21) | -31 (-35) | -50 (-46) |
| 30 (0.76) | 16 (-9) | -10 (-23) | -42 (-41) | -74 (-59) |
| 36 (0.91) | 16 (-9) | -18 (-28) | -50 (-46) | # |
| Cement content = 600 lb/yd2 (356 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | 38 (3) | 26 (-3) | 14 (-10) | 2 (-17) |
| 18 (0.46) | 24 (-4) | 0 (-18 ) | -24 (-31) | -48 (-44) |
| 24 (0.61) | 14 (-10) | -16 (-27) | -46 (-43) | -82 (-63) |
| 30 (0.76) | 10 (-12) | -20 (-29) | -62 (-52) | # |
| 36 (0.91) | 7 (-14) | -30 (-34) | # | # |

* > 50 F (10 C): additional heat required

# << -60 F (-51 C)

**Minimum exposure temperatures for concrete flatwork placed on the ground for concrete placed & surface temperature maintained at 50 F (10 C) for 7 days on ground at 35 F (2 C)**

| Slab thickness, in. (m) | Minimum ambient air temperature, deg F (deg C) allowable when insulation having these values of thermal resistance **R**, hr-ft$^2$-F/Btu (m$^2$-K/W), is used | | | |
|---|---|---|---|---|
| | **R** = 2 (0.35) | **R** = 4 (0.70) | **R** = 6 (1.06) | **R** = 8 (1.41) |
| Cement content = 300 lb/yd2 (178 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | * | * | * | * |
| 18 (0.46) | 46 (8) | 42 (6) | 36 (2) | 30 (-1) |
| 24 (0.61) | 40 (4) | 31 (-1) | 22 (-6) | 11 (-12) |
| 30 (0.76) | 35 (2) | 22 (-6) | 7 (-14) | -8 (-22) |
| 36 (0.91) | 31 (-1) | 13 (-11) | -5 (-21) | -23 (-31) |
| Cement content = 400 lb/yd2 (237 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | * | * | * | * |
| 18 (0.46) | 41 (5) | 32 (0) | 22 (-6) | 12 (-11) |
| 24 (0.61) | 35 (2) | 19 (-7) | -1 (-17) | -15 (-26) |
| 30 (0.76) | 28 (-2) | 8 (-13) | -14 (-26) | -36 (-38) |
| 36 (0.91) | 23 (-5) | -4 (-20) | -29 (-34) | -54 (-48) |
| Cement content = 500 lb/yd2 (296 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | 48 (9) | 44 (7) | 40 (4) | 36 (2) |
| 18 (0.46) | 36 (2) | 22 (-6) | 8 (-13) | -6 (-21) |
| 24 (0.61) | 28 (-2) | 6 (-14) | -16 (-27) | -38 (-39) |
| 30 (0.76) | 22 (-6) | -7 (-22) | -36 (-38) | -64 (-53) |
| 36 (0.91) | 16 (-9) | -18 (-28) | -50 (-46) | # |
| Cement content = 600 lb/yd2 (356 kg/m2) | | | | |
| 4 (0.10) | * | * | * | * |
| 8 (0.20) | * | * | * | * |
| 12 (0.31) | 44 (7) | 38 (3) | 32 (0) | 26 (-3) |
| 18 (0.46) | 31 (-1) | 14 (-10) | -5 (-21) | -24 (-31) |
| 24 (0.61) | 22 (-6) | -5 (-21) | -32 (-36) | -61 (-52) |
| 30 (0.76) | 14 (-10) | -19 (-28) | -67 (-55) | # |
| 36 (0.91) | 7 (-14) | -30 (-34) | # | # |

* > 50 F (10 C): additional heat required

# < -60 F (-51 C)

## Thermal Resistance of Various Insulating Materials

| Insulating Material | Thermal resistance "R" for these thicknesses of material* | |
|---|---|---|
| | 1 in., hr·ft3·F / Btu | 10 mm, m3·K / W |
| Boards and slabs | | |
| Expanded polyurethane (R-11 exp.) | 6.25 | 0.438 |
| Expanded polystyrene extruded (R-11 exp.) | 5 | 0.347 |
| Expanded polystyrene extruded, plain | 4 | 0.277 |
| Glass fiber, organic bonded | 4 | 0.277 |
| Expanded polystyrene, molded beads | 3.57 | 0.247 |
| Mineral fiber with resin binder | 3.45 | 0.239 |
| Mineral fiber board, wet felted | 2.94 | 0.204 |
| Sheathing, regular density | 2.63 | 0.182 |
| Cellular glass | 2.63 | 0.182 |
| Laminated paperboard | 2 | 0.139 |
| Particle board (low density) | 1.85 | 0.128 |
| Plywood | 1.25 | 0.087 |
| Blanket | | |
| Mineral fiber, fibrous form processed from rock, slag, or glass | 3.23 | 0.224 |
| Loose fill | | |
| Wood fiber, soft woods | 3.33 | 0.231 |
| Mineral fiber (rock, slag, or glass) | 2.5 | 0.173 |
| Perlite (expanded) | 2.7 | 0.187 |
| Vermiculite (exfoliated) | 2.2 | 0.152 |
| Sawdust or shavings | 2.22 | 0.154 |

*Values from ASHRAE Handbook of Fundamentals, 1977, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, New York.

State of Illinois
Department of Transportation
Division of Aeronautics

**POLICY MEMORANDUM**

| June 12, 2014 | Springfield, Illinois | Number 2003-1 |
|---|---|---|

TO: CONTRACTORS

SUBJECT: REQUIREMENTS FOR LABORATORY, TESTING, QUALITY CONTROL, AND PAVING OF SUPERPAVE HMA CONCRETE MIXTURES FOR AIRPORTS

## I. SCOPE

The purpose of this policy memorandum is to define to the Contractor the requirements concerning the laboratory, testing, Quality Control, and paving of HMA mixtures utilizing Superpave technology. References are made to the most recent issue of the Standard Specifications for Construction of Airports (Standard Specifications) and to American Society for Testing and Materials (ASTM) testing methods. The Quality Assurance and acceptance responsibilities of the Resident Engineer are described in Policy Memorandum 96-3.

## II. LABORATORY

The Contractor shall provide a laboratory located at the plant and approved by the Illinois Division of Aeronautics (IDA). The laboratory shall be of sufficient size and be furnished with the necessary equipment and supplies for adequately and safely performing the Contractor's Quality Control testing as well as the Resident Engineer's acceptance testing as described in Policy Memorandum 87-2.

The effective working area of the laboratory shall be a minimum of 600 square feet with a ceiling height of not less than 7.5 feet. Lighting shall be adequate to illuminate all working areas. It shall be equipped with heating and air conditioning units to maintain a temperature of 70º F ±5ºF.

The laboratory shall have equipment that is in good working order and that meets the requirements set forth in the following ASTM test standards:

| | |
|---|---|
| ASTM D 70 | Test Method for Specific Gravity and Density of Semi-Solid Materials |
| ASTM C 117 | Test Method for Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing |
| ASTM C 136 | Sieve or Screen Analysis of Fine and Coarse Aggregate |
| ASTM C 566 | Total Moisture Content of Aggregate by Drying |
| ASTM D 75 | Sampling Aggregates |
| ASTM D 2041 | Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures |

| | |
|---|---|
| ASTM D 2172 | Quantitative Extraction of Bitumen from Bituminous Paving Mixtures |
| AASHTO T 308-09 | Ignition Method for Determining Asphalt Content (Illinois Modified) |
| ASTM D 2726 | Bulk Specific Gravity of Compacted Bituminous Mixtures using Saturated Surface Dry Specimens |
| ASTM D 3203 | Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures |
| ASTM D 2950 | Density of Bituminous Concrete in Place by Nuclear Method |
| ASTM D 4125 | Asphalt Content of Bituminous Mixtures by Nuclear Method |
| ASTM C 127 | Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate |
| ASTM C 128 | Standard Test Method for Specific Gravity and Absorption of Fine Aggregate |

The laboratory and equipment furnished by the Contractor shall be properly calibrated and maintained. The Contractor shall maintain a record of calibration results at the laboratory. The Engineer may inspect measuring and testing devices at any time to confirm both calibration and condition. If the Engineer determines that the equipment is not within the limits of dimensions or calibration described in the appropriate test method, he may stop production until corrective action is taken. If laboratory equipment becomes inoperable or insufficient to keep up with mix production testing, the Contractor shall cease mix production until adequate and/or sufficient equipment is provided.

## III. MIX DESIGN SUBMITTAL

Based upon data and test results submitted by the Contractor, the Illinois Division of Aeronautics Engineer of Construction & Materials shall issue the final Job Mix Formula (JMF) approval letter that concurs or rejects the Contractor's proposed JMF. The Contractor will be required to perform the sampling and laboratory testing and develop a complete mix design, according to the following guidelines: Mix design submittals should be sent to IDA, Construction/Material Section, Attn: Certification and Mixtures Engineer. Note: Quality Control (QC) Managers shall be Level III QC/QA qualified and will be responsible for all mix designs. All Technicians obtaining samples and performing gradations shall have successfully completed the IDOT Mixture Aggregate Technician Course and Technicians performing mix design testing and plant sampling/testing shall have successfully completed the IDOT Bituminous Concrete Level 1 Technician Course under the Illinois Department of Transportation, Bureau of Materials & Physical Research QC/QA Training Program.

### A. Preliminary Mix Design Submittal

Top half of the IDOT Mix Design Software Cover Sheet (QC/QA Package) should be completed for the aggregate mix design parameters and should include the following:

1. Producer name, Producer # and Producer location of each aggregate (Producers are assigned Producer numbers by IDOT Central Bureau of Materials)

2. Material code for each aggregate

3. Aggregate Gradations per ASTM C-136 (The Contractor shall obtain representative samples of each aggregate)

4. Material code for each aggregate (i.e. 022CM11, etc.)

5. Proposed Aggregate Blend (% for each aggregate) Note: Based on the gradation results, the Contractor shall select the blend percentages that comply with the Standard Specifications, Section 401/403 – 3.2 JOB MIX FORMULA, Table 2. (Appendix A)

6. Producer name, Producer #, and specific gravity of the proposed asphalt cement

7. IDOT approved PG Binder 64-22 shall be used unless otherwise specified by the IDA Engineer of Construction & Materials.

B. Mixture Design & Testing

Design Parameters

Gyrations ($N_{des}$) – per Standard Specifications, Section 401/403 – 3.2 (JMF), Table 1
Asphalt Content – AC% per Standard Specifications, Section 401/403 – 3.2 (JMF), Table 2
Maximum Specific Gravity – $G_{mm}$ (ASTM D 2041)
Bulk Specific Gravity – $G_{mb}$ (ASTM D 2726)
% air voids – $V_a$ (ASTM D3203) per Standard Specifications, Section 401/403 – 3.2 (JMF), Table 2
VFA % – per Standard Specifications, Section 401/403 – 3.2 (JMF), Table 1

Mixture Tests

After verification and approval by IDA of the proposed design information from step A., the Contractor shall perform mixture tests on 4 gyratory brix (4 point mix design) to determine the optimum AC content for the target Air Voids.

C. Mix Design Submittal

The Preliminary JMF including all test results shall be reported to IDA, Construction/Material Section, Attn: Certification and Mixtures with the following data:

a) Aggregate & asphalt cement material codes
b) Aggregate & asphalt cement producer numbers, names, and locations
c) Percentage of each individual aggregate
d) Aggregate blend % for each sieve
e) AC Specific Gravity
f) Bulk Specific Gravity and Absorption for each aggregate
g) Summary of Superpave Design Data: AC % Mix, $G_{mb}$, $G_{mm}$, VMA, Voids (Total Mix), Voids Filled, $V_{be}$, $P_{be}$, $P_{ba}$, $G_{se}$
h) Optimum design data listing: AC % Mix, $G_{mb}$, $G_{mm}$, VMA, Voids (Total Mix), Voids Filled, $G_{se}$, $G_{sb}$

i) Percent of asphalt that any RAP will add to the mix
j) Graphs for the following: gradation on 0.45 Power Curve, AC vs. Voids (Total Mix), AC vs. Specific Gravities, AC vs. Voids Filled, AC vs. VMA

D. Mix Approval

Once the proposed JMF is reviewed and approved by IDA, a JMF approval letter will be issued to the contractor. Production of HMA is not authorized until a JMF letter has been issued. When a Test Section is specified as part of the contract, the proposed JMF shall be considered preliminary until it passes all Test Section requirements.

E. Change in Material Sources

The above procedure, III. MIX DESIGN SUBMITTAL shall be repeated for each change in source or gradation of materials.

## IV. MIX PRODUCTION TESTING

The Quality Control of the manufacture and placement of HMA mixtures is the responsibility of the Contractor. The Contractor shall perform or have performed the inspection and tests required to assure conformance to contract requirements. Quality Control includes the recognition of defects and their immediate correction. This may require increased testing, communication of test results to the plant or the job site, modification of operations, suspension of HMA production, rejection of material, or other actions as appropriate. The Resident Engineer shall be immediately notified of any failing tests and subsequent remedial action. Form AER M-14 shall be reported to IDA, Construction/Material Section, Attn: Certification and Mixtures Engineer and the Resident Engineer no later than the start of the next work day. The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for Quality Control. This individual shall have successfully completed the IDOT Division of Highways HMA Concrete Level II Technician Course “HMA Proportioning and Mixture Evaluation.” In addition to the QC Manager, the Contractor shall provide sufficient and qualified personnel to perform the required visual inspections, sampling, testing, and documentation in a timely manner.

A. Gradations for Mixture Proportioning: Aggregate gradations for proportioning (ASTM C-136) are required at a minimum of one per week when mix is produced. Aggregate gradations can be either hot bin gradations for batch plants or stockpile gradations for drier drum plants. Hot bin gradations may be reported on either form AER 9 or on the Division of Highways QC/QA package "Grad 1" Tab in the Daily HMA Plant Reporting Module. Stockpile gradations shall be shown on form MI504QC from the "Print Out" Tab in the Aggregate Stockpile Module of The Division of Highways QC/QA Package.

B. Production Mixture Testing: 1 per 1000 tons of the following (if total daily quantity is < /= 200 tons (small quantity) then a mix sample is not required and this quantity may be added on to next day's total for testing. Two consecutive days without testing is not allowed.): Reflux extraction (ASTM D2172) or Ignition oven test showing gradation and AC Content, Maximum Specific Gravity (ASTM D 2041), Bulk Specific Gravity (ASTM D 2726) and % Air Voids (ASTM D 3203). Calculations of the results (including weight data) shall be shown on the "Voids 1" and "IGN & NUC AC 1" tab printouts from the Division of Highways QC/QA Package Daily HMA Plant Reporting module.

C. A certification from the quarry for the total quantity of aggregate listing the source, gradation type, and quality designation of aggregate shipped. The Aggregate Certification of Compliance (AER18) may be used by the contractor for this purpose.

D. Original asphalt shipping tickets listing the source and type of asphalt shipped.

E. Check sample tests at a rate of 1/5000 tons randomly selected by the R.E. shall be sent with an identification sheet to an independent laboratory designated by the Division of Aeronautics. If the project is < 5000 tons, 1 sample selected randomly shall be sent.

F. Bituminous Test Summary (AER 14) Note: The R.E. should make certain that the Contractor fills this form out daily (for mix production days) and distributes it daily to the Division of Aeronautics and R.E. The Contractor (QC Manager) is required to note any adjustments to the mix or to the plant (proportioning) in the "Remarks/Corrective Measures" section of the AER 14.

## V. QUALITY CONTROL

A. Control Limits (Control Charts used for projects > 4000 tons per bituminous concrete pay item)

Target values shall be determined from the approved JMF. The target values shall be plotted on the control charts within the following control limits:

Control Limits

| Parameter | Individual Test | Moving Avg. of 4 |
|---|---|---|
| % Passing | | |
| 1/2 in. | ± 7 % | ±4 % |
| No. 4 | ±7 % | ±4 % |
| No. 8 | ±5 % | ±3 % |
| No. 30 | ±4 % | ±2.5 % |
| No. 200 * | ±2.0 % * | ±1.0 % * |
| Asphalt Content | ±0.45 % | ±0.2 % |

* No. 200 material percent's shall be based on washed samples. Dry sieve gradations (-200) shall be adjusted based on anticipated degradation in the mixing process.

B. Control Charts (Control Charts used for projects > 4000 tons per bituminous concrete pay item)

Standardized control charts shall be maintained by the Contractor at the field laboratory. The control charts shall be displayed and be accessible at the field laboratory at all times for review by the Engineer. The individual required test results obtained by the Contractor shall be recorded on the control chart immediately upon completion of a test, but no later than 24 hours after sampling. Only the required plant tests and resamples shall be recorded on the control chart. Any additional testing of check samples may be used for controlling the Contractor's processes, but shall be documented in the plant diary.

The results of assurance tests performed by the Resident Engineer will be posted as soon as available.

The following parameters shall be recorded on control charts:

1. Combined Gradation of Hot-Bin (Batch Plant) or Combined Belt Aggregate Samples (Drier Drum Plant) (% Passing 1/2 in., No. 4., No. 8, No. 30, and No. 200 Sieves)

2. Asphalt Content

3. Bulk Specific Gravity ($G_{mb}$)

4. Maximum Specific Gravity of Mixture ($G_{mm}$) C.

Corrective Action for Required Plant Tests

Control Limits for each required parameter, both individual tests and the average of four tests, shall be exhibited on control charts. Test results shall be posted within the time limits previously outlined.

1. Individual Test Result. When an individual test result exceeds its control limit, the Contractor shall immediately resample and retest. If at the end of the day no material remains from which to resample, the first sample taken the following day shall serve as the resample as well as the first sample of the day. This result shall be recorded as a retest. If the retest passes, the Contractor may continue the required plant test frequency. Additional check samples should be taken to verify mix compliance.

2. Asphalt Content. If the retest for asphalt content exceeds control limits, mix production shall cease and immediate corrective action shall be instituted by the Contractor. After corrective action, mix production shall be restarted, the mix production shall be stabilized, and the Contractor shall immediately resample and retest. Mix production may continue when approved by the Engineer. The corrective action shall be documented.

   Inability to control mix production is cause for the Engineer to stop the operation until the Contractor completes the investigation identifying the problems causing failing test results.

3. Combined Aggregate/Hot-Bin. For combined aggregate/hot-bin retest failures, immediate corrective action shall be instituted by the Contractor. After corrective action, the Contractor shall immediately resample and retest. The corrective action shall be documented.

   a. Moving Average. When the moving average values trend toward the moving average control limits, the Contractor shall take corrective action and increase the sampling and testing frequency. The corrective action shall be documented.

      The Contractor shall notify the Engineer whenever the moving average values exceed the moving average control limits. If two consecutive moving average values fall outside the moving average control limits, the

Contractor shall cease operations. Corrective action shall be immediately instituted by the Contractor. Operations shall not be reinstated without the approval of the Engineer. Failure to cease operations shall subject all subsequently produced material to be considered unacceptable.

b. Mix Production Control. If the Contractor is not controlling the production process and is making no effort to take corrective action, the operation shall stop.

VI. TEST SECTION AND DENSITY ACCEPTANCE **(Note: Applies only when specified.)**

A. The purpose of the test section is to determine if the mix is acceptable and can be compacted to a consistent passing density.

A quick way to determine the compaction of the mix is by the use of a nuclear density gauge in the construction of a growth curve. An easy way to construct a growth curve is to use a good vibratory roller. To construct the curve, an area the width of the roller in the middle of the mat is chosen and the roller is allowed to make one compaction pass. With the roller stopped some 30 feet away, a nuclear reading is taken and the outline of the gauge is marked on the pavement. The roller then makes a compaction pass in the opposite direction and another reading is taken. This scenario is continued until at least two (2) passes are made past the maximum peak density obtained.

The maximum laboratory density potential of a given mix is a direct function of the mix design air voids. Whereas, the actual maximum field density is a function of the type of coarse aggregates, natural or manufactured sands, lift thickness, roller type (static or vibratory), roller and paver speed, base condition, mix variation, etc. All of these items are taken into consideration with the growth curve.

1. <u>High Density in the Growth Curve</u>. If the growth curve indicates a maximum achievable field density of between 95 to 98 percent of the Theoretical Maximum Density (D), you can proceed with the Rolling Pattern. On the other hand, if the maximum achievable density is greater than 98 percent, a quick evaluation (by use of an extractor, hot bin gradations, nuclear asphalt determination, etc.) must be made of the mix. When adjustments are made in the mix, a new growth curve shall be constructed.

2. <u>Low Density in the Growth Curve</u>. If the growth curve indicates the maximum achievable density is below 94 percent, a thorough evaluation of the mix, rollers, and laydown operations should be made. After a thorough evaluation of all factors (mix, rollers, etc.), asphalt or gradation changes may be in order as directed by the Engineer. Again, any changes in the mix will require a new growth curve. Note that the nuclear density test is a quality control tool and not an acceptance test. All acceptance testing is to be conducted by the use of cores, unless otherwise specified.

3. Acceptance of Test Section. The Contractor may proceed with paving the day after the test section provided the following criteria have been met:

   a. Four random locations (2 cores per location cut longitudinally and cored by the Contractor) will be selected by the Engineer within the test strip. All the cores must show a minimum of 94% density.

   b. All Superpave and extraction test results from mix produced for the test section must be within the tolerances required by specification.

   c. The Contractor shall correlate his nuclear gauge to the cores taken in the test section. Additional cores may be taken at the Contractor's expense for this purpose within the test section area, when approved by the Engineer.

4. Density Acceptance under Production Paving. The responsibility for obtaining the specified density lies with the Contractor. Therefore, it is important that the nuclear density gauge operator communicate with the roller operators to maintain the specified density requirements. The Contractor shall provide a qualified HMA Density Tester who has successfully completed the Department's "HMA Nuclear Density Testing Course" to run all required density tests on the job site. Density acceptance testing, unless otherwise specified, is described as follows:

   a. The Contractor shall cut cores at random locations within 500 ton sublots as directed by the Resident Engineer.

   b. The cores should be extracted so as not to damage them, since they are used to calculate the Contractor's pay.

   c. The Engineer will run preliminary $G_{mb}$ tests on the cores to give the Contractor an indication of how compaction is running for the next day's paving.

   d. A running average of four (4) Maximum Theoretical Gravities ($G_{mm}$) will be used for calculating percent compaction.

   e. Final core density tests and pay calculations will be performed by the Resident Engineer and delivered to the Contractor.

   f. Should the contractor wish to resample the pavement as a result of pay calculations resulting in less than 100% payment the request must be made within 48 hours of receipt of the original payment calculation.

Steven J. Long, P.E. Acting Chief Engineer

Supersedes Policy Memorandum 2003-1 dated May 1, 2014

# APPENDIX A

# AGGREGATE BITUMINOUS BASE COURSE

| Percentage by Weight Passing Sieves<br>Job Mix Formula (JMF) | | |
|---|---|---|
| Sieve Size | Gradation B Range<br>1” Maximum | Ideal Target |
| 1-1/4 in. | --- | --- |
| 1 in. | 100 | 100 |
| 3/4 in. | 93 – 97 | 95 |
| 1/2 in. | 75 – 79 | 77 |
| 3/8 in. | 64 – 68 | 66 |
| No. 4 | 45 – 51 | 48 |
| No. 8 | 34 – 40 | 37 |
| No. 16 | 27 – 33 | 30 |
| No. 30 | 19 – 23 | 21 |
| No. 100 | 6 – 10 | 8 |
| No. 200 | 4 – 6 | 5 |
| Bitumen %:<br>Stone | 4.5 – 7.0 | 5.5 |

# AGGREGATE BITUMINOUS SURFACE COURSE

| Percentage by Weight Passing Sieves<br>Job Mix Formula (JMF) | | |
|---|---|---|
| Sieve Size | Gradation B Range<br>¾" Maximum | Ideal Target |
| 1 in. | 100 | --- |
| 3/4 in. | 100 | 100 |
| 1/2 in. | 99 - 100 | 100 |
| 3/8 in. | 91 - 97 | 94 |
| No. 4 | 56 – 62 | 59 |
| No. 8 | 36 - 42 | 39 |
| No. 16 | 27 - 32 | 30 |
| No. 30 | 19 - 25 | 22 |
| No. 100 | 7 – 9 | 8 |
| No. 200 | 5 – 7 | 6 |
| Bitumen %:<br>Stone | 5.0 – 7.0 | 6.0 |

State of Illinois Department of Transportation
Office of Intermodal Project Implementation
Aeronautics

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**POLICY MEMORANDUM**

| February 10, 2022 | Springfield, Illinois | Number 22-1 |
|---|---|---|

TO: CONSULTING ENGINEERS / CONTRACTORS

SUBJECT: ACCEPTED CEMENT TYPES

I. This policy memorandum addresses the accepted cement types for use in Items 501 and 610 Concrete mixtures. Type IL cement has been added to the approved list and may be used on all IDOT-Let Aeronautics projects.

II. The following cement types are approved.

a. Type I cement conforming to the requirements of ASTM C 150.

b. Type IL cement conforming to the requirements of ASTM C 595.

c. All other types are not allowed unless specified by Special Provisions.

William C. Eves, P.E.
Acting Chief Engineer

State of Illinois Department of Transportation
Office of Intermodal Project Implementation
Aeronautics

**POLICY MEMORANDUM**

| | | |
|---|---|---|
| February 10, 2022 | Springfield, Illinois | Number: 22-2 |

TO: CONSULTING ENGINEERS / CONTRACTORS

SUBJECT: OBTAINING APPROVED AGGREGATES COMPLYING WITH 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS

## I. SCOPE

This Policy Memorandum addresses the additional aggregate quality requirements of the 2020 Illinois Standard Specifications for Construction of Airports, Special Provisions, and policies of IDOT Aeronautics. The airport quality requirements exceed those normally expected for similar IDOT highways pay items.

## II. REQUIREMENTS

The contractor shall use these procedures to demonstrate aggregate compliance with the contract requirements.

A. Contractor Responsibility

1.) For Item 208 Aggregate Base and Item 209 Crushed Aggregate Base, the Contractor shall use aggregates with test requirements conforming to 2020 Standard Specifications for Construction of Airports, Coarse Aggregate Quality table, Section 208-2.2 and Section 209-2.2. Note: Item 208 and 209 Airport aggregates require B Quality coarse aggregates instead of the IDOT Highways allowed D Quality.

a) Na2SO4 Soundness 5 Cycle, Illinois Modified AASHTO T 104, maximum percent loss = 15%.

b) Los Angeles Abrasion, Illinois Modified AASHTO 96, maximum percent loss = 40%.

c) Deleterious Materials, Illinois Testing Procedure 203, Deleterious Particles in Coarse Aggregate.
   i. Shale, 2.0% maximum.
   ii. Clay Lumps, 0.5% maximum.

iii. Soft & Unsound Fragments, 6.0 % maximum.
iv. Other Deleterious, 2.0% maximum.
v. Total Deleterious, 6.0% maximum.

2.) For Item 401 HMA Mixtures, the Contractor shall use aggregates with quality testing requirements conforming to 2020 Standard Specifications for Construction of Airports, Coarse Aggregate Quality table, Section 401-2.1a(2) and Fine Aggregate Quality table, Section 401-2.1b(2). Note: Airport HMA mixtures require A Quality coarse and fine aggregates instead of the IDOT Highways allowed B Quality.

a) Deleterious Materials, Illinois Testing Procedure 203, Deleterious Particles in Coarse Aggregate.
   i. Shale, 1% max.
   ii. Clay Lumps, 0.25% max
   iii. Coal & Lignite, 0.25% max
   iv. Soft & Unsound Fragments, 4.0 % max
   v. Other Deleterious, 4.0% max
   vi. Total Deleterious, 5.0% max

3.) For Item 501 PCC Mixtures, the Contractor shall use aggregates with quality testing requirements conforming to 2020 Standard Specifications for Construction of Airports, Coarse Aggregate Quality table, Section 501-2.3(b). It is noted that this A Quality table has been modified from the current IDOT Highways A Quality requirements. Aggregate testing procedures and acceptance are as follows.

a) Total Deleterious Maximum % = 2.6% conforming to Illinois Testing Procedure 203 Deleterious Particles in Coarse Aggregate (ITP 203).

b) Maximum Deleterious Chert % = 0.1% conforming to Illinois Modified AASHTO T 113, Standard Method of Test for Lightweight Pieces in Aggregate.

4.) Obtaining aggregates conforming to the requirements of the 2020 Standard Specifications for Construction of Airports.

a) First, check with your aggregate source(s) to see if their product recently passed Aeronautics requirements. It is possible the aggregate source in questions has met the Aeronautics requirements, but the IDOT Bureau of Materials does not have the Aeronautics-approved product listed. For example: the B Quality aggregate 031CM16 at a particular source has been confirmed to also meet A Quality. Check with your aggregate source to confirm aggregate quality to be used in the above pay items. Check with IDOT Aeronautics for previously approved sources.
b) If the aggregate source does not have recent tests to show it meets Aeronautics requirements, the Contractor shall ask the aggregate source to request the IDOT District Materials Engineer to test the aggregate for the required parameters.
c) If the IDOT District is unable to perform the requested test(s) or the IDOT District schedule is not compatible with the Contractor's timetable, the Contractor shall have the aggregate tested by a third-party testing laboratory. The third-party laboratory shall be IDOT-approved or AASHTO-approved. AASHTO approval consists of accreditation in accordance with AASHTO Materials Reference Laboratory (AMRL).

d) Additional expense incurred by the Contractor for third-party testing may be approved for payment by a Change Authorization in the amount of the actual testing cost. Confirm with the Aeronautics Materials & Certifications Engineer to get prior approval for testing expenses.

e) Aeronautics will maintain a database of approved sources and third-party tested aggregates that conform to the requirements of the 2020 Specifications.

5) Frequency of Testing. Test results for aggregate products from the same ledge, processed using the same method and equipment, shall be considered to meet the Aeronautics requirements for 1 year from the testing date. IDOT Aeronautics reserves the right to re-test aggregates to confirm compliance.

William C. Eves, P.E.
Acting Chief Engineer

# Illinois Department of Transportation

## Memorandum

To: Airport Consultants and Contractors

From: William Eves, P.E.

Subject: HMA Comparison Samples

Date: December 7, 2020

In accordance with Policy Memorandum 96-3, the Resident Engineer (R.E.) shall obtain split comparison samples from the contractor for testing by an ASTM-certified, independent testing laboratory. In order to reduce splitting errors, the R.E. shall request that the contractor split the sample down to individual test sample size. The split samples shall be placed in individual paper bags for each test.

The following list shows the number and size of each sample:

3 Superpave Gyratory Brix (Gmb)..... 3 bags: 4800 grams each
Vacuum Pycnometer Test (Gmm)……...2 bags: 1500 grams each
Ignition Oven or Extraction……2 bags: 1500 grams each

Each paper bag shall be identified with the following information:

Airport Name:
Illinois Project Number:
Type of Mix (Base or Surface):
Date Sampled:
Lot-Sublot Number:
Type of test (Brix - Pycnometer - Ignition Oven or Extraction):

For the samples identified as brix the R.E. shall also include the number of gyrations that are required in the construction contract: Illinois Standard Specifications for Construction of Airports (September 25, 2020), Items 401 and 403, Asphalt Design Criteria.

NUMBER OF SAMPLES TO BE SUBMITTED FOR TESTING

One per test section for each type of mix, then one randomly selected sample for each 5000 tons of mix produced under production paving. Projects with less than 5000 tons of mix shall have one split sample tested per mix type for the project in addition to the test section split sample, if a test section is specified. The split samples not selected shall be stored by the contractor for use at the discretion of the Division of Aeronautics.

The R.E. shall place all seven (7) bags in a box along with all samples and ship them to an ASTM-certified, independent lab for testing. The cost of all testing

is to be borne by the Consultant. The lab shall be chosen by the Consultant but shall not be the same one used by the Contractor. All testing results shall be obtained in a timely manner. The R.E. shall also fill out the sample identification sheet, which shall be sent to the laboratory. Copies of the sample identification sheet and all testing results shall be submitted to:

Illinois Department of Transportation, Division of Aeronautics
Attn: Mixtures and Certification Engineer

Supersedes Comparison Samples Memorandum, dated February 20, 2014

ILLINOIS DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

SAMPLE IDENTIFICATION

AIRPORT_____ LOCATION_____

ILLINOIS PROJECT NO. _____

MIX PRODUCER _____

PRODUCER NUMBER _____

LOCATION _____

TYPE OF MIX _____

LOT NUMBER _____ SUBLOT NUMBER _____

DATE SAMPLED _____

SAMPLED FROM _____

# OF GYRATIONS _____

COMMENTS_____

_____

_____

**FILL IN ALL BLANKS**

_____
**R.E. or REPRESENTATIVE SIGNATURE**

EMAIL COPY TO:

DIVISION OF AERONAUTICS
MIXTURES and CERTIFICATIONS ENGINEER

NOTE: Samples should be submitted on day of sampling but no later than 48 hours.

Appendix B
Geotechnical Report

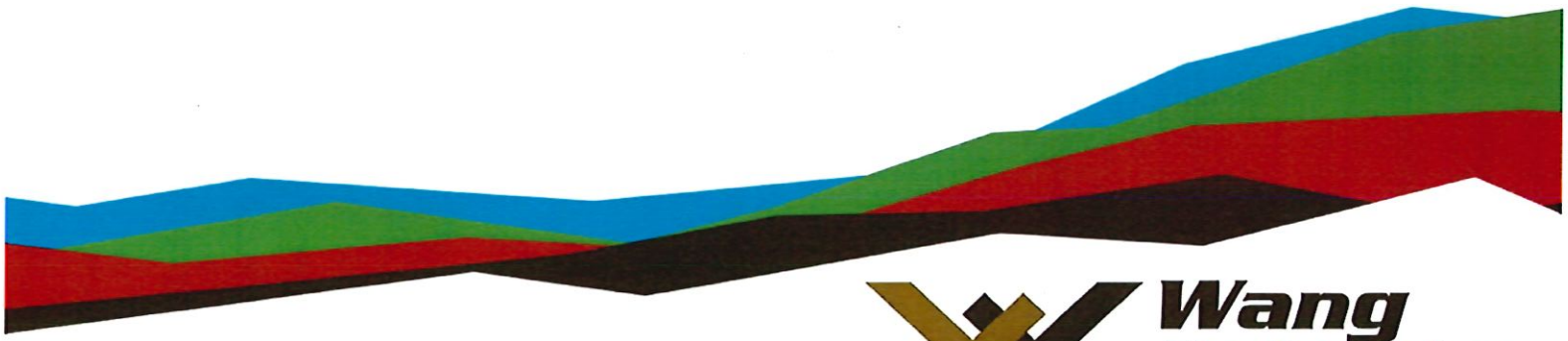
# Proposed Bolingbrook's Clow International Airport Taxiway

## Geotechnical Engineering Report

March 12, 2024 | Wang/Terracon Project No. KE235441

**Prepared for:**

Kimley-Horn and Associates, Inc.
4201 Winfield Road, Suite 600
Warrenville, IL 60555



Wang Engineering
A Terracon Company

Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical

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A Terracon Company

1145 N Main St.
Lombard, IL 60148
P (630) 953-9928
**Terracon.com**

March 12, 2024

Kimley-Horn and Associates, Inc.
4201 Winfield Road, Suite 600
Warrenville, IL 60555

Attn: Mr. Junaid Yahya
P: (630) 487-3472
E: Junaid.yahya@kimley-horn.com

Re: Geotechnical Engineering Report
Proposed Bolingbrook's Clow International Airport Taxiway
130 Clow International Pkwy C,
Bolingbrook, IL 60490
Wang/Terracon Project No. KE235441

Dear Mr. Yahya:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. PKE235441 dated January 15, 2024. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, and taxiway pavement for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

**Wang Engineering, a Terracon Company**

Rajeesh K. Singh
Rajneesh K. Singh

Senior Staff Engineer

Mickey Snider
Mickey L. Snider, P.E.

Senior Engineer

# Table of Contents



## Figures



## Attachments

# Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Bolingbrook's Clow International Airport Box Hangar to be located at 130 Clow International Pkwy C, in Bolingbrook, IL 60490. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site/subgrade preparation and earthwork
- Excavation considerations
- Taxiway design recommendations
- Frost considerations

The geotechnical engineering Scope of Services for this project included the advancement of test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings of the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the **Exploration Results** section.

# Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning.

| Item | Description |
|---|---|
| **Information Provided** | An email request for proposal was provided by Mr. Junaid Yahya of Kimley-Horn on December 13, 2023. The request included a plan layout of the proposed development. |

| Item | Description |
|---|---|
| **Project Description** | We understand the project includes construction of a new replacement parallel taxiway and a new airport rotating beacon at Bolingbrook's Clow Airport.<br><br>Driveway and parking will be constructed for small aircrafts. Anticipated traffic details were not provided hence it is assumed as follows:<br><br>▪ Light aircraft weight less than 12,500 pounds.<br>▪ The pavement design period is 20 years. |
| **Building Construction (assumed)** | None anticipated |
| **Grading** | Minimal grade changes (less than 2 feet) are anticipated for the proposed construction. |
| **Below-Grade Structures** | None anticipated. |

Terracon should be notified if any of the above information is inconsistent with the planned construction, as modifications to our recommendations may be necessary.

# Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

| Item | Description |
|---|---|
| **Parcel Information** | The proposed project is located at 130 Clow International Parkway, Bolingbrook Illinois.<br>Approximate Latitude 41.6962° N Longitude 88.1266° W<br>See **Site Location** |
| **Existing Improvements** | Existing improvements include various hangars to the north and west end and an aviation museum to the northwest side of the site. The site is also bordered by Home Depot and Big lots towards the east end. |
| **Current Ground Cover** | Mostly grass and concrete covered. |

| Item | Description |
|---|---|
| **Existing Topography** | The surface elevations at the site vary from about 656 to 675 feet. |

# Geotechnical Characterization

## Subsurface Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results**.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel in the **Figures** section.

| Model Layer | Layer Name | General Description |
|---|---|---|
| **1** | **Topsoil/Pavement** | Approx. 3- to 8-inch-thick TOPSOIL/ ASPHALT |
| **2** | **Existing Fill** | Very stiff LEAN CLAY with varying amounts of sand<br>Medium dense poorly graded SAND |
| **3** | **Lean Clay** | Very stiff to hard LEAN CLAY |
| **4** | **Gravel** | Loose to dense well-graded GRAVEL |

## Groundwater Conditions

The borings were advanced using hollow stem augers allowing for short-term groundwater observations to be made while drilling. The boreholes were observed while drilling and after completion for the presence and level of groundwater. The water levels observed in the boreholes can be found on the boring logs in the **Exploration and Laboratory Results** section.

| Boring Number | Groundwater Depth While Drilling (feet) | Groundwater Depth After Drilling (feet) |
|---|---|---|
| B-1 | Dry | Dry |
| B-2 | Dry | Dry |
| B-3 | Dry | Dry |
| B-4 | Dry | Dry |
| B-5 | Dry | Dry |
| B-6 | Dry | Dry |
| B-7 | Dry | Dry |
| B-8 | Dry | Dry |
| B-9 | 3.0 | 5.5 |
| B-10 | 3.0 | 5.0 |
| B-11 | 7.0 | 8.0 |

Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

# Geotechnical Overview

The site appears suitable for the proposed construction based upon the subsurface conditions encountered in the test borings, provided that our recommendations are implemented in design and construction phases of this project.

An average pavement and topsoil stripping thickness of 3 and 9 inches, respectively, should be considered for estimating purposes. For a rigid pavement design, subgrade soil reaction modulus ($k_v$) value of 100 pci is recommended. The subgrade soils along the project site will exhibit poor to fair drainage characteristics; therefore, an improved drainage system is recommended.

The near surface soils encountered at the project site consist of cohesive soil. Any near surface, cohesive soil could become unstable when exposed to typical earthwork and construction traffic, especially after precipitation events. The effective or positive drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional

site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration and Laboratory Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

# Taxiway (pavement)

## General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

The CBR value is used for the design of flexible pavements, whereas the vertical subgrade soil reaction modulus (kv) is used as the primary input for rigid pavement design (FAA 2018). For flexible pavement design, we recommend CBR values of 3.0 and 4.0 at the footprint of the taxiway. The Federal Aviation Administration (FAA) recommends performing two or three field plate bearing tests for each pavement to determine the kv value (FAA 2018). In the absence of testing, the kv value may be estimated from the CBR value (FAA 2018). If they consider using rigid pavement, we recommend using a kv value of 100 pci for rigid pavement design (FAA 2018).

There is often a time lapse between the end of grading operations and the commencement of paving. Subgrades prepared early in the construction process can become disturbed by construction traffic. Non-uniform subgrades often result in poor pavement performance and local failures relatively soon after pavements are constructed. Depending on the paving equipment used by the contractor, measures may be required to improve subgrade strength to greater depths for support of heavily loaded trucks. Improvements should be made as recommended in **Earthwork**.

If removal and replacement of unstable soils is completed with granular soils, then to avoid the "bathtub" effect, the undercut areas should be sloped to a drain tile which is in turn sloped to the nearest storm sewer or pond. The drain tile should be a minimum 4 inches in diameter and have a minimum slope of ½ percent.

## Pavement Section Thicknesses

Terracon was not provided with anticipated traffic loading information. We have developed recommended minimum pavement sections for both asphaltic concrete (AC) and Portland cement concrete (PCC) based on Federal Aviation Administration (FAA), the traffic conditions and pavement life noted in **Project Description**. Pavements should be designed for the types and volumes of traffic, subgrade and drainage conditions that are anticipated. Greater pavement and/or base course thicknesses may be required for greater expected traffic loads and volumes, or if poorer subgrade conditions are encountered.

The following table provides our opinion of minimum thickness for AC sections:

| Minimum Layer Thickness for Flexible Pavement Structures[1] | | |
|---|---|---|
| Layer | Maximum Aircraft Gross Weight Operating on Pavement, lbs | |
| | <60,000 | < 100,000 |
| AC surface course | 3 inches | 4 inches |
| AC binder course [2] | Not Required | 6 inches |
| Aggregate base course | 6 inches | 6 inches |

1. Structural design must be completed to determine layer thicknesses required to support actual traffic.
2. All materials should meet the current Federal Aviation Administration (FAA) Standard Specifications for taxiway Construction.
3. IDOT CA-6 or an approved alternate gradation.

The following table provides our estimated minimum thickness of PCC pavements.

| Minimum Layer Thickness for Rigid Pavement Structures[1] | | |
|---|---|---|
| Layer | Maximum Aircraft Gross Weight Operating on Pavement, lbs | |
| | <60,000 | < 100,000 |
| PCC [2,3] | 6 | 6 |
| Aggregate base course | 6 | 6 |

| Minimum Layer Thickness for Rigid Pavement Structures[1] | | |
|---|---|---|
| Layer | Maximum Aircraft Gross Weight Operating on Pavement, lbs | |
| | <60,000 | < 100,000 |

1. Complete structural design to determine rigid surface layer thickness required to support actual traffic
2. The PCC should be air-entrained and have a minimum compressive strength of 4,000 psi after 28 days of laboratory curing (ASTM C31).
3. All materials should meet the current Federal Aviation Administration (FAA) Standard Specifications for taxiway Construction.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles.

If asphalt pavements are used in truck traffic areas, the owner must accept the potential for some rutting/shoving of the pavement surface. Frequent mill-and-overlay rehabilitation or other pavement repairs may be required if asphalt pavements are used in areas subject to turning trucks and/or heavy static loads (e.g. parked trucks/trailers).

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. Islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils are particular areas of concern. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the stormwater collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

All joints should be sealed and maintained. The pavement designer should select the joint sealant material based on expected joint movement, in accordance with ACI 504 "Guide to Sealing Joints in Concrete Structures". All joint sealant reservoirs should be designed to accommodate the specified joint sealant compound's thermal and shrinkage tolerances.

Pavements and subgrades will be subject to freeze-thaw cycles and seasonal fluctuations in moisture content. Construction traffic on the pavements was not considered in developing the estimated minimum pavement thicknesses. If the pavements will be subject to construction equipment/vehicles, the pavement sections should be revised to consider the additional loading.

## Pavement Drainage

The subgrade soils will exhibit poor to fair drainage characteristics. Based on the results of our investigation, due to the presence of cohesive fill, water reaching the surface may not drain rapidly. Excessive moisture and traffic will deteriorate the condition of the subgrade and cause deformation and stability issues. Proper surface grading and drainage of the exposed subgrade is important to remove any water accumulations and to minimize the pooling of water and prevent soil softening. Therefore, underdrain systems will be required. Generally, edge drain systems combined with a subsurface drainage layer are most effective in removing free water and minimizing frost action (FAA 2018). Per FAA guidelines, pavements in frost areas constructed on FG2 or higher subgrade soils, such as the investigated project site, should include a subsurface drainage layer. For rigid pavements, the drainage layer is usually placed beneath the concrete slab. For flexible pavements, the drainage layer is usually placed above the subgrade (FAA 2018).

## Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.

- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

# Frost Considerations

The soils on this site are frost susceptible, and small amounts of water can affect the performance of the slabs on-grade, sidewalks, and pavements. Exterior slabs should be anticipated to heave during winter months. If frost action needs to be eliminated in critical areas, we recommend the use of non-frost susceptible (NFS) fill or structural slabs (for instance, structural stoops in front of building doors). Placement of NFS material in large areas may not be feasible; however, the following recommendations are provided to help reduce potential frost heave:

- Provide surface drainage away from the building and slabs, and toward the site drainage system.
- Install drains around the perimeter of the building, stoops, below exterior slabs and pavements, and connect them to the site drainage system.
- Grade clayey subgrades so groundwater potentially perched in overlying fill or aggregate base, slope toward a site drainage system.
- Place NFS fill as backfill beneath slabs and pavements critical to the project.
- Place a 3 horizontal to 1 vertical (3H:1V) transition zone between NFS fill and other soils.
- Place NFS materials in critical sidewalk areas.

As an alternative to extending NFS fill to the full frost depth, consideration can be made to placing extruded polystyrene or cellular concrete under a buffer of at least 2 feet of NFS material.

# Earthwork

The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for pavements.

## Site Preparation

Prior to placing any new structural fill, any existing vegetation, topsoil, root mats, and pavements should be removed where present. Once initial stripping, cutting, and filling has been completed, the exposed subgrade soils should be proofrolled with an adequately loaded vehicle such as a fully loaded tandem axle dump truck with a gross weight of at

least 25 tons or similarly loaded equipment. The proofrolling should be performed under the observation of the Geotechnical Engineer. Areas that rut or excessively deflect under the proofrolling should be improved by scarifying and compaction or by removal and replacement with an approved structural fill as discussed in Fill Material Types. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

## Existing Fill

As noted in **Geotechnical Characterization**, our borings encountered existing cohesive fill extending to depths of about 8.0 feet bgs. The grade-supported pavements are more lightly loaded than foundations and are generally more tolerant of minor movements, so the support of pavements on or above possible existing fill is discussed in this report. However, even with the recommended construction procedures, there is an inherent risk for the owner that compressible existing fill or unsuitable material within or buried by the existing fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report.

If the owner elects to construct the pavements on cohesive fill, the following protocol should be followed. Once the planned subgrade elevation has been reached the entire pavements area should be proofrolled as stated earlier in our report. Areas of loose, soft, or otherwise unsuitable material should be undercut and replaced with new structural fill.

## Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 10 feet of structures, pavements or constructed slopes. General fill is material used to achieve grade outside of these areas.

Fill material used to attain the final design elevations should be structural fill material in accordance with FAA Specification P-152, *Excavation and Embankment*. The testing performed on the bulk samples obtained from the proposed on-site borrow piles indicates that the material meets the specifications for reuse at both the hangar slab and the parking lot. The fill material should be free of organic matter and debris.

**Reuse of On-Site Soil:** Excavated on-site soil may be selectively reused as fill below slab, pavement, and landscaping areas.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table below:

| Property | General Fill | Structural Fill |
|---|---|---|
| Composition | Free of deleterious material | Free of deleterious material |
| Maximum particle size | 6 inches (or 2/3 of the lift thickness) | 3 inches |
| Fines content | Not limited | Silt and Fine Sand 65% max |
| Plasticity | Not limited | Maximum plasticity index of 12 |
| GeoModel Layer Expected to be Suitable[1] | 2 | N/A |

1. Based on subsurface exploration. Actual material suitability should be determined in the field at time of construction.

**Imported Fill Materials:** Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

| Soil Type [1] | USCS Classification | Acceptable Parameters Structural Fill |
|---|---|---|
| Low Plasticity Cohesive | CL, CL-ML | Liquid Limit less than 50<br>Plasticity Index less than 12<br>Silt and Fine Sand 65% max |
| Granular | GW, GP, GM, GC, SW, SP, SM, SC | Less than 50% passing No. 200 sieve |
| Unsuitable | CL/CH, CH, MH, OL, OH, PT, ML | N/A |

1. Structural and general fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site. Additional geotechnical consultation should be provided prior to use of uniformly graded gravel on the site.

## Fill Placement and Compaction Requirements

Structural and general fill should meet the following compaction requirements.

| Item | Structural Fill | General Fill |
|---|---|---|
| **Maximum Lift Thickness** | 8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used<br>4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used | Same as structural fill |
| **Minimum Compaction Requirements** [1,2,3] | 95% of the Modified Proctor (ASTM D1557) maximum dry density below foundations, slabs, and pavements. The compaction effort should extend laterally beyond the edges of the structures at least 8 inches for every foot of fill below the structure's elevation. | 95% of max. |
| **Water Content Range** [1] | Low Plasticity Cohesive: -2% to +3% of Modified Proctor optimum moisture content (ASTM D1557) at the time of placement and compaction<br>Granular: As required to achieve minimum compaction requirements. | As required to achieve minimum compaction requirements |

1. Maximum density and optimum water content as determined by the Modified Proctor test (ASTM D1557).
2. Moisture levels should be maintained to achieve compaction without bulking during placement or pumping when proofrolled.
3. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed by the Geotechnical Engineer or representative.

## Grading and Drainage

All grades must provide effective/positive drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 5 feet from the building.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades

may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

## Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of grade-supported improvements such as slabs and pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to slab and pavement construction.

Based on the groundwater conditions observed during our field program, groundwater may not be a concern during construction of the proposed foundations. However, if water seepage is encountered or if surface water collects in open excavations, the contractor should be prepared to remove water from the excavations. Water should not be allowed to accumulate in the bottom of the excavations. Water seepage that may occur can likely be managed by sump pits and pumps.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under **no** circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

## Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer. Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas identified by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer or their representative. If unanticipated conditions are observed, the Geotechnical Engineer should recommend mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

# General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation

costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

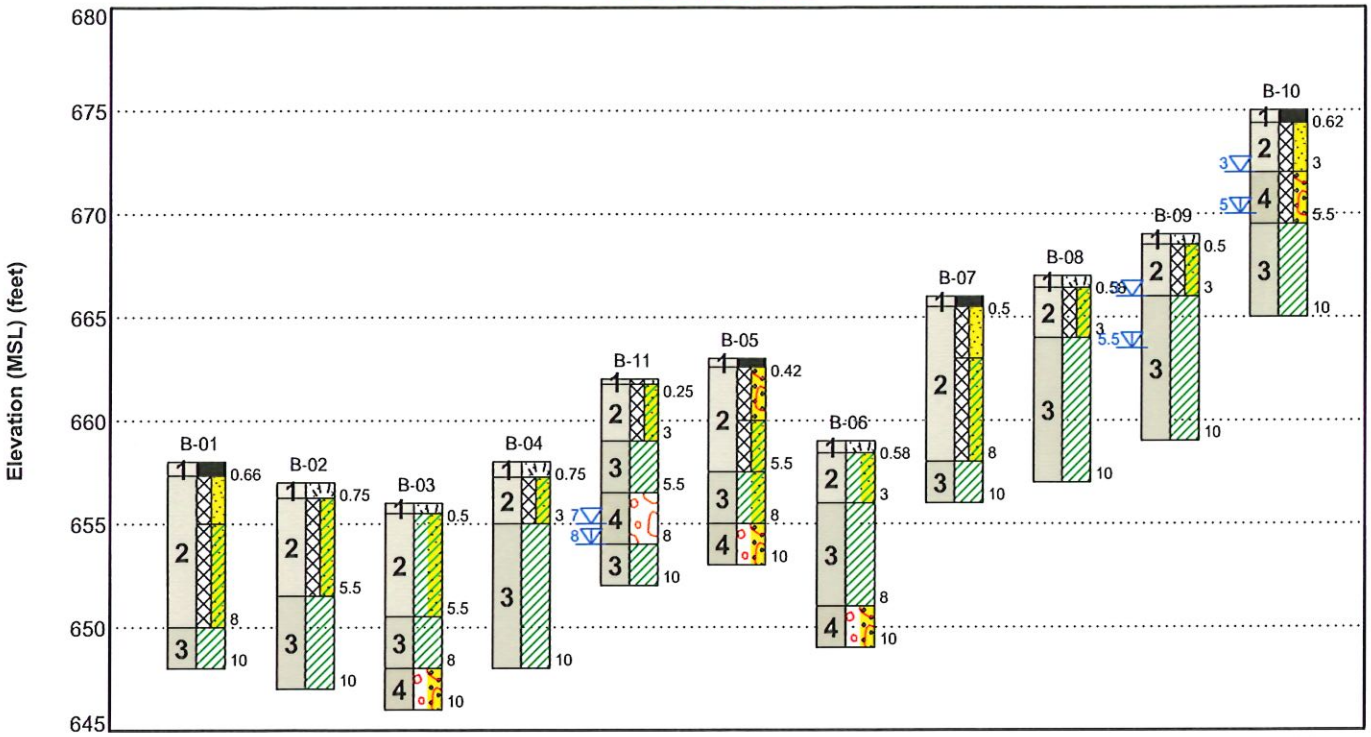
# Figures

**Contents:**

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# GeoModel




This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

| Model Layer | Layer Name | General Description |
|---|---|---|
| 1 | Topsoil/Pvement | Approx. 3- to 8-inch-thick TOPSOIL/ ASPHALT |
| 2 | Existing Fill | Very stiff LEAN CLAY with varying amounts of sand<br>Medium dense poorly graded SAND |
| 3 | Lean Clay | Very stiff to hard LEAN CLAY |
| 4 | Gravel | Loose to dense well-graded GRAVEL |

## LEGEND

- Asphalt
- Poorly-graded Sand
- Lean Clay with Sand
- Lean Clay
- Topsoil
- Well-graded Gravel w/sand
- Well-graded Gravel

▽ First Water Observation
▽ Second Water Observation

The groundwater levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

# Attachments

# Exploration and Testing Procedures

## Field Exploration

The following borings were drilled at locations and depths as follows:

| Number of Borings | Approximate Boring Depth (feet) [1] | Location |
|---|---|---|
| 11 | 10 (B-01 to B-11) | Within the footprint of the proposed taxiway |

1. The drilled boring locations are shown on the attached **Exploration Plan**.

**Boring Layout and Elevations:** We used a Trimble brand handheld GPS equipment to locate borings with an estimated horizontal accuracy of ± 6 inches and vertical accuray of ± 3 feet. Field measurements from existing site features were utilized.

**Subsurface Exploration Procedures:** We advanced the borings with a truck-mounted drill rig using continuous hollow stem augers. Samples were obtained at intervals of 2.5 feet up to the boring depth. Soil sampling was performed using split-barrel sampling procedures. The split-barrel samplers were driven in accordance with the standard penetration test (SPT). The samples were placed in appropriate containers, taken to our laboratory for testing, and classified by a geologist.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a geotechnical engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the geotechnical engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

## Laboratory Testing

The project engineer reviewed field data and assigned laboratory tests to understand the engineering properties of various soil strata. the following laboratory testing were performed:

- Water content
- Atterberg limits
- Particle size analysis

- Moisture Density Relationship
- CBR

Based on the results of our field and laboratory programs, we described and classified soil samples in accordance with the Unified Soil Classification System (USCS).

# Site Location and Exploration Plans

**Contents:**



Note: All attachments are one page unless noted above.

## Site Location

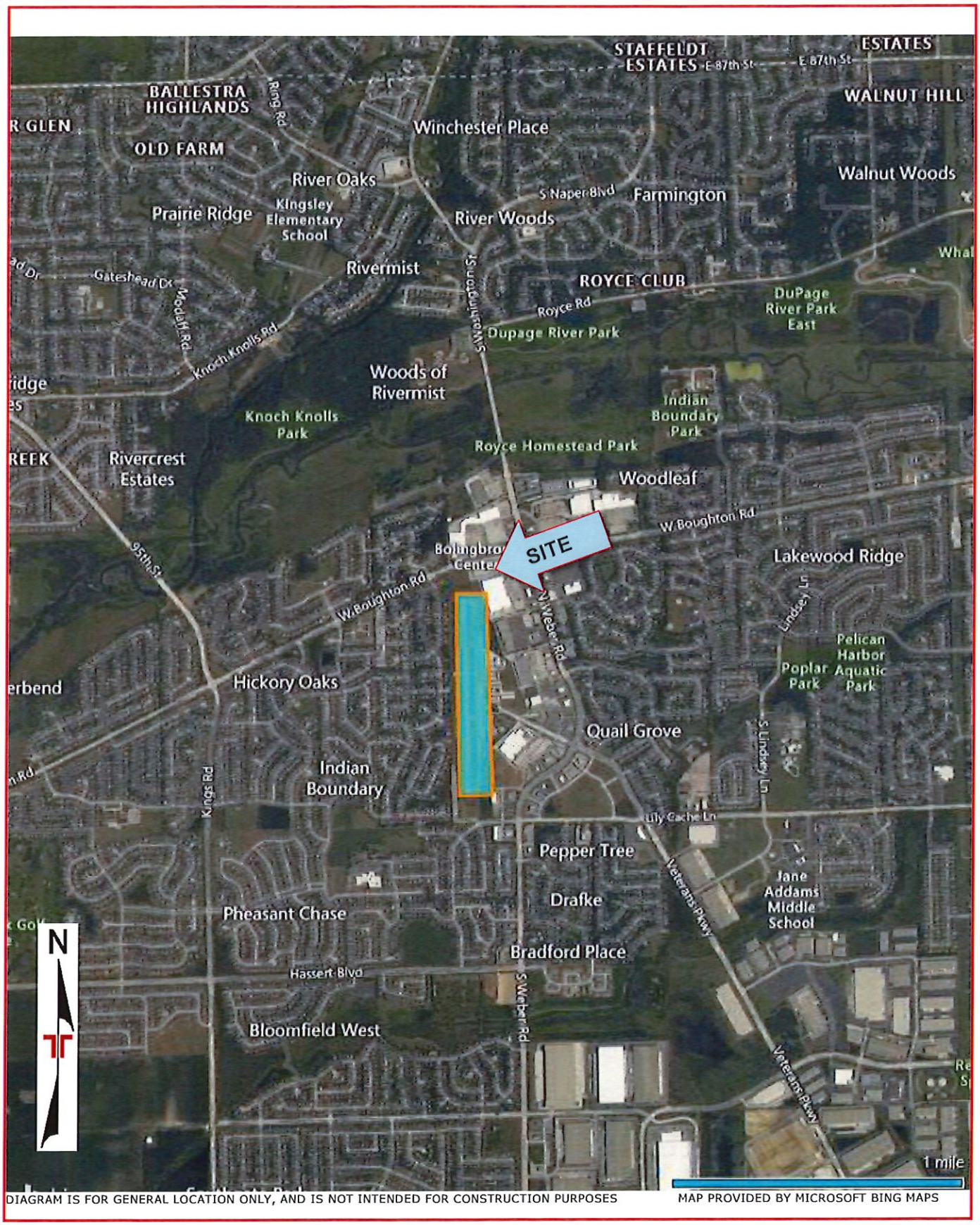



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

## Exploration Plan

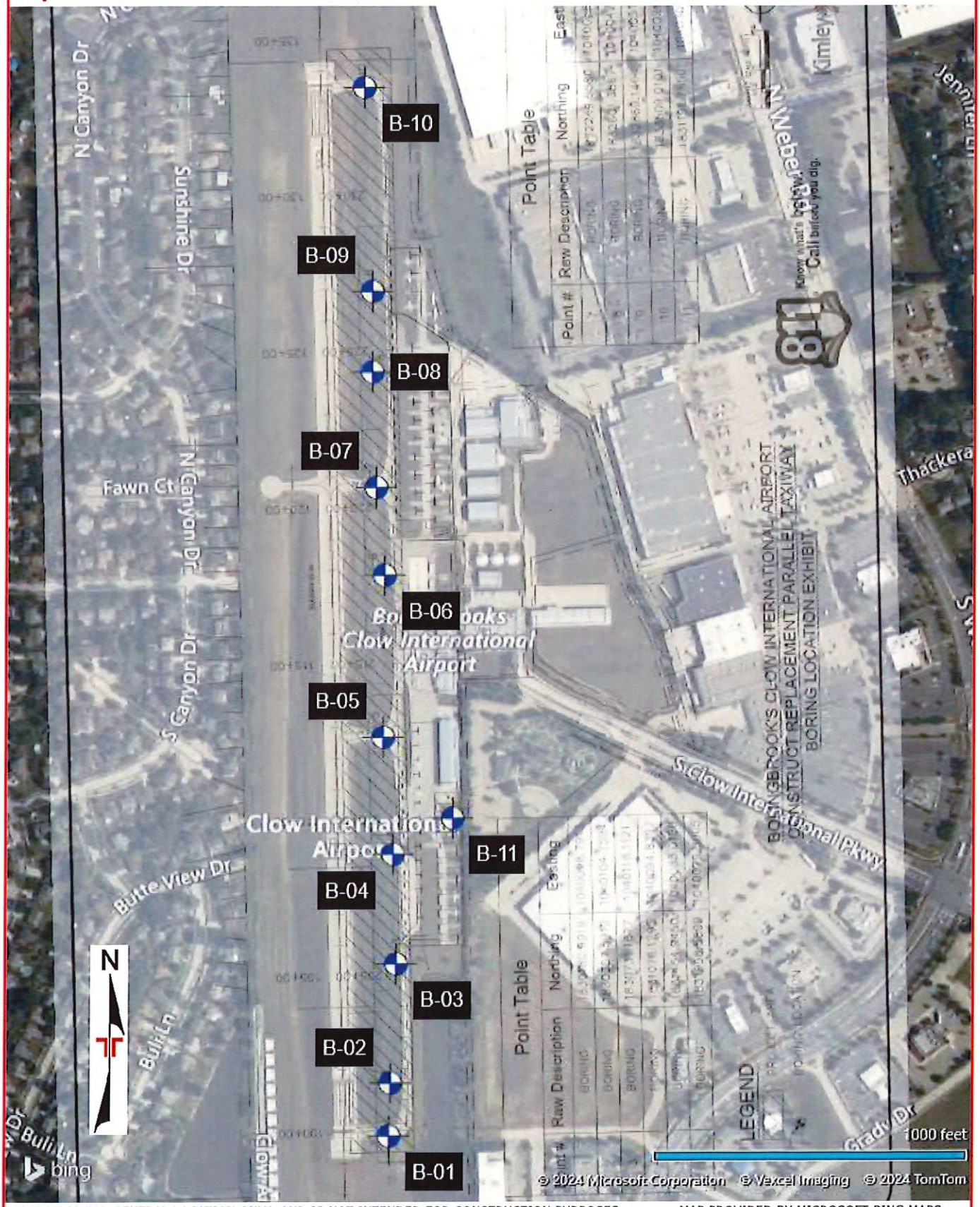



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

# Exploration and Laboratory Results

**Contents:**

Boring Logs (B-1 through B-11)
Atterberg limits
Particle size analysis
Moisture Density Relationship
CBR

Note: All attachments are one page unless noted above.

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-01

Location: See Exploration Plan

Latitude: 41.6913° Longitude: -88.1288°
Northing: 1830178.202 Easting: 1040111.46

Depth (Ft.) Elevation.: 658 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.7 **Approx. 8-inch-thick asphalt** 657.34 | | | | | | | |
| 2 | | **FILL - POORLY GRADED SAND (SP)**, gray, medium dense 3.0 655 | | | 12 | 10-13-16 N=29 | NP | 2.9 | |
| | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, very stiff | | | 18 | 3-5-8 N=13 | 2.0 B | 30.7 | |
| | | | | | 18 | 3-7-8 N=15 | 2.62 B | 24.9 | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard 10.0 648 | | | 18 | 4-9-13 N=22 | 5.82 B | 21.3 | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**
Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2023

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-02

Location: See Exploration Plan

Latitude: 41.6918° Longitude: -88.1288°
Northing: 1830346.297 Easting: 1040115.848

Depth (Ft.) Elevation.: 657 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | **Approx. 9 inches of topsoil** 0.8 / 656.25 | | | | | | | |
| 2 | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, very stiff | | | 7 | 2-3-7 N=10 | 2.35 B | 24.6 | |
| | | | | | 18 | 5-5-8 N=13 | 3.69 B | 27.6 | |
| | | 5.5 / 651.5 | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard | | | 18 | 7-8-13 N=21 | 7.30 B | 22.1 | |
| | | | | | 14 | 4-5-6 N=11 | 4.66 B | 22.7 | |
| | | 10.0 / 647 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-03

Location: See Exploration Plan

Latitude: 41.6928° Longitude: -88.1287°
Northing: 1830725.45 Easting: 1040131.205

Depth (Ft.) Elevation.: 656 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.5 **Approx. 6 inches of topsoil** 655.5 | | | | | | | |
| 2 | | **LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff | | | 7 | 3-3-3 N=6 | 1.0 (HP) | 24.4 | 41-18-23 |
| | | | | | 10 | 3-4-7 N=11 | 1.25 (HP) | 20.4 | |
| | | 5.5 650.5 | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, gray, hard | | | 18 | 5-11-15 N=26 | 5.82 B | 16.3 | |
| | | 8.0 648 | | | | | | | |
| 4 | | **WELL GRADED GRAVEL WITH SAND (GW)**, gray, dense | | | 18 | 8-25-23 N=48 | NP | 4.6 | |
| | | 10.0 646 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf

B=buldge failure of Rimac tested sample

S=shear failure of Rimac tested sample

HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-04

Location: See Exploration Plan

Latitude: 41.6938° Longitude: -88.1288°
Northing: 1831074.543 Easting: 1040118.928

Depth (Ft.) Elevation.: 658 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | **Approx. 9 inches of topsoil** 0.8 / 657.25 | | | | | | | |
| 2 | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff 3.0 / 655 | | | 9 | 3-3-4 N=7 | 1.5 (HP) | 24.5 | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, very stiff to hard | | | 18 | 3-6-5 N=11 | 5.0 B | 20.0 | |
| | | | | | 18 | 3-6-7 N=13 | 2.21 B | 125.4 | |
| | | 10.0 / 648 | | | 18 | 5-11-20 N=31 | 2.46 B | 6.0 | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-05

Location: See Exploration Plan

Latitude: 41.6948° Longitude: -88.1289°
Northing: 1831446.266 Easting: 1040085.349

Depth (Ft.) Elevation.: 663 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.4 **Approx. 5-inch-thick asphalt** 662.58 | | | | | | | |
| 2 | | **FILL - WELL GRADED GRAVEL WITH SAND (GW)**, trace gravel, gray, loose | | | | | | | |
| | | | | X | 8 | 6-2-3 N=5 | NP | 4.8 | |
| | | 3.0 660 | | | | | | | |
| | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff | | | | | | | |
| | | | | X | 7 | 3-4-5 N=9 | 1.25 (HP) | 18.9 | |
| | | 5.5 657.5 | | | | | | | |
| 3 | | **LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff | | | | | | | |
| | | | | X | 8 | 5-3-3 N=6 | 1.0 (HP) | 16.6 | |
| | | 8.0 655 | | | | | | | |
| 4 | | **WELL GRADED GRAVEL WITH SAND (GW)**, brown, medium dense | | | | | | | |
| | | | | X | 12 | 3-5-10 N=15 | NP | 8.8 | |
| | | 10.0 653 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-06

Location: See Exploration Plan

Latitude: 41.6962° Longitude: -88.1289°
Northing: 1831960.079 Easting: 1040087.588

Depth (Ft.) Elevation.: 659 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.6 **Approx. 7 inches of topsoil** 658.42 | | | | | | | |
| 2 | | **LEAN CLAY WITH SAND (CL)**, trace gravel, brown, hard | | X | 7 | 4-5-9 N=14 | 4.5 (HP) | 20.5 | |
| | | 3.0 656 | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard | | X | 18 | 6-8-14 N=22 | 6.0 B | 20.3 | |
| | | | | X | 18 | 4-7-10 N=17 | 5.3 B | 21.7 | |
| | | 8.0 651 | | | | | | | |
| 4 | | **WELL GRADED GRAVEL WITH SAND (GW)**, brown, dense | | X | 18 | 11-15-17 N=32 | NP | 4.0 | |
| | | 10.0 649 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-07

Location: See Exploration Plan

Latitude: 41.6970° Longitude: -88.1290°
Northing: 1832238.305 Easting: 1040058.657

Depth (Ft.) Elevation.: 666 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.5 **Approx. 6-inch-thick asphalt** 665.5 | | | | | | | |
| 2 | | **FILL - POORLY GRADED SAND (SP)**, trace gravel, gray, loose 3.0 663 | | | 10 | 10-4-5 N=9 | NP | 8.4 | |
| | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, dark gray, very stiff | | | 7 | 3-6-6 N=12 | 2.25 (HP) | 22.6 | |
| | | 8.0 658 | | | 0 | 3-5-6 N=11 | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard 10.0 656 | | | 18 | 5-6-8 N=14 | 6.10 (HP) | 21.2 | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

5
10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-08

Location: See Exploration Plan

Latitude: 41.6980° Longitude: -88.1290°
Northing: 1832604.365 Easting: 1040045.071

Depth (Ft.) Elevation.: 667 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.6 **Approx. 7 inches of topsoil** 666.42 | | | | | | | |
| 2 | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, very stiff | | | 4 | 6-4-5 N=9 | 2.5 (HP) | 28.6 | |
| | | 3.0 664 | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard | | | 18 | 6-7-8 N=15 | 5.25 B | 20.2 | |
| | | | | | 18 | 4-6-11 N=17 | 5.0 B | 20.9 | |
| | | | | | 18 | 4-7-12 N=19 | 6.89 B | 20.2 | |
| | | 10.0 657 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf

B=buldge failure of Rimac tested sample

S=shear failure of Rimac tested sample

HP=hand penetrometer test (tsf)

**Water Level Observations**

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-09

Location: See Exploration Plan

Latitude: 41.6987° Longitude: -88.1290°
Northing: 1832859.528 Easting: 1040043.402

Depth (Ft.) Elevation.: 669 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.5 **Approx. 8 inches of topsoil** 668.5 | | | | | | | |
| 2 | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff | | | | | | | |
| | | | | X | 3 | 6-5-4 N=9 | 1.5 (HP) | 28.7 | |
| | | 3.0 666 | ▽ | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard | | | | | | | |
| | | | | X | 6 | 2-3-6 N=9 | 4.25 (HP) | 17.9 | |
| | | 5 | ▽ | | | | | | |
| | | | | X | 18 | 5-8-11 N=19 | 5.23 B | 19.2 | |
| | | | | X | 18 | 7-9-12 N=21 | 4.43 B | 20.1 | |
| | | 10.0 659 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

▽ 3.0 feet while drilling
▽ 5.5 feet at completion of drilling

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-10

Location: See Exploration Plan

Latitude: 41.7005° Longitude: -88.1291°
Northing: 1833506.56 Easting: 1040015.232

Depth (Ft.) Elevation.: 675 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.6 **Approx. 7.5-inch-thick asphalt** 674.38 | | | | | | | |
| 2 | | **FILL - POORLY GRADED SAND (SP)**, trace gravel, gray, medium dense | | | 13 | 9-8-7 N=15 | NP | 8.7 | |
| | | 3.0 672 | ▽ | | | | | | |
| 4 | | **FILL - WELL GRADED GRAVEL (GW)**, brown, medium dense | | | 6 | 2-3-8 N=11 | NP | 15.0 | |
| | | 5.5 669.5 | ▽ | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard to very stiff | | | 18 | 4-7-11 N=18 | 5.0 B | 18.5 | |
| | | | | | 18 | 3-5-7 N=12 | 3.2 B | 20.0 | |
| | | 10.0 665 | | | | | | | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

5
10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

▽ 3.0 feet while drilling
▽ 5.0 feet at completion of drilling

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

Bolingbrook Clow International Airport
130 Clow International Parkway | Bolingbrook, IL
Terracon Project No. KE235441

Terracon
1145 N Main St
Lombard, IL

# Boring Log No. B-11

Location: See Exploration Plan

Latitude: 41.6941° Longitude: -88.1281°
Northing: 1831188.624 Easting: 1040309.563

Depth (Ft.) Elevation.: 662 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Recovery (In.) | Field Test Results | HP (tsf) | Water Content (%) | Atterberg Limits LL-PL-PI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.3 **FILL - Approx. 3 inches of topsoil** 661.75 | | | | | | | |
| 2 | | **FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff | | | | | | | |
| | | 3.0 659 | | X | 5 | 2-4-5 N=9 | 1.25 (HP) | 30.9 | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, very stiff | | | | | | | |
| | | 5.5 656.5 | | X | 12 | 4-3-5 N=8 | 2.62 B | 22.3 | 42-20-22 |
| 4 | | **WELL GRADED GRAVEL (GW)**, brown, dense | | | | | | | |
| | | | ▽ | X | 18 | 3-6-30 N=36 | NP | 15.5 | |
| | | 8.0 654 | ▽ | | | | | | |
| 3 | | **LEAN CLAY (CL)**, trace gravel, brown, hard to very stiff | | | | | | | |
| | | 10.0 652 | | X | 18 | 3-4-7 N=11 | 2.0 B | 19.0 | |
| | | ***Boring Terminated at 10 Feet*** | | | | | | | |

5
10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Rimac test results presented in Field Test Results column in tsf
B=buldge failure of Rimac tested sample
S=shear failure of Rimac tested sample
HP=hand penetrometer test (tsf)

**Water Level Observations**

▽ 7.0 feet while drilling
▽ 8.0 feet at completion of drilling

**Advancement Method**
4.0" OD CFA

**Abandonment Method**
Boring backfilled with Auger Cuttings and/or Bentonite
Surface Capped with Asphalt

**Drill Rig**
ATV D-50

**Hammer Type**
Automatic

**Driller**
Geocon: Rick & Travis

**Logged by**
F. Bozga

**Boring Started**
02-07-2024

**Boring Completed**
02-07-2024

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# LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX of SOILS

## AASHTO T 89, T 90 / ASTM D 4318

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job No:** KE235441
**Prep Method:** air dried

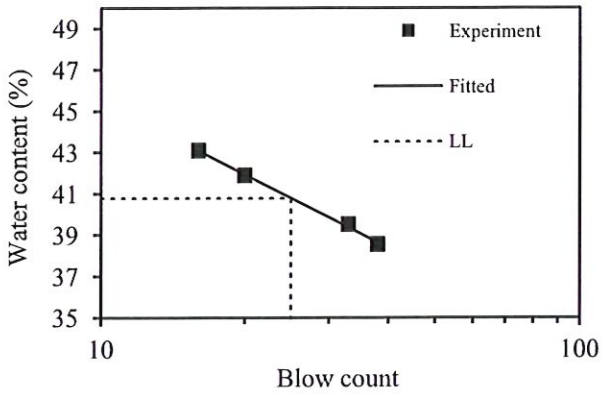
**Analyst name:** L. Varzaru
**Test date:** February 21, 2024
**Soil Sample ID:** B-03 (Bulk)
**Sample description:** Brown LEAN CLAY w/ SAND (CL)
**% retained on #40 sieve:** 17%

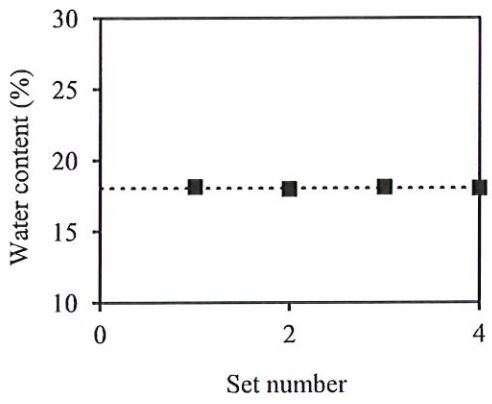
| Set # | Tare mass (g) Wc | Tare with wet soil (g) Ww | Tare with dry soil (g) Wd | Blow count N | Water content (%) w | Water content fitted (%) |
|---|---|---|---|---|---|---|
| *1* | *11.01* | *24.20* | *20.53* | *38* | 38.55 | 38.66 |
| *2* | *11.41* | *21.40* | *18.57* | *33* | 39.53 | 39.38 |
| *3* | *11.65* | *24.96* | *21.03* | *20* | 41.90 | 41.94 |
| *4* | *10.96* | *26.40* | *21.75* | *16* | 43.10 | 43.09 |

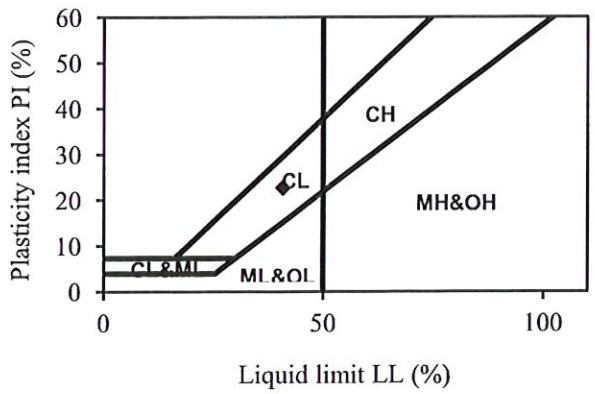
**Liquid limit (%) = 40.80**
**Slope of flow line = 0.125**

| Set # | Tare mass (g) Mc | Tare with wet soil (g) Mw | Tare with dry soil (g) Md | Water content (%) w |
|---|---|---|---|---|
| *1* | *11.03* | *21.65* | *20.02* | 18.13 |
| *2* | *11.16* | *20.21* | *18.83* | 17.99 |
| *3* | *11.00* | *22.21* | *20.49* | 18.12 |
| *4* | *10.97* | *25.18* | *23.01* | 18.02 |

**Plastic limit (%) = 18.07**




**Liquid limit (%) = *41***
**Plastic limit (%) = *18***
**Plasticity index (%) = *23***

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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# LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX of SOILS

## AASHTO T 89, T 90 / ASTM D 4318

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job No:** KE235441
**Prep Method:** air dried

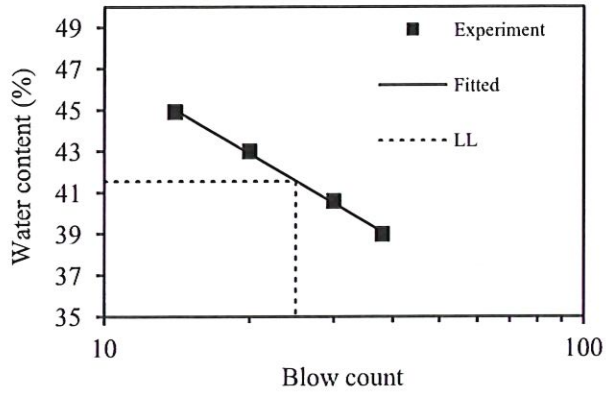
**Analyst name:** L. Varzaru
**Test date:** February 21, 2024
**Soil Sample ID:** B-11, SS#2 (3.5-5)
**Sample description:** Brown LEAN CLAY (CL)
**% retained on #40 sieve:** 4%

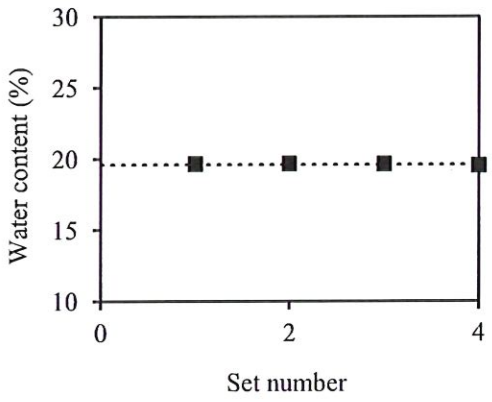
| Set # | Tare mass (g) Wc | Tare with wet soil (g) Ww | Tare with dry soil (g) Wd | Blow count N | Water content (%) w | Water content fitted (%) |
|---|---|---|---|---|---|---|
| *1* | *11.06* | *20.22* | *17.65* | *38* | 39.00 | 39.10 |
| *2* | *11.10* | *20.66* | *17.90* | *30* | 40.59 | 40.50 |
| *3* | *11.10* | *19.58* | *17.03* | *20* | 43.00 | 42.90 |
| *4* | *11.61* | *24.29* | *20.36* | *14* | 44.91 | 45.00 |

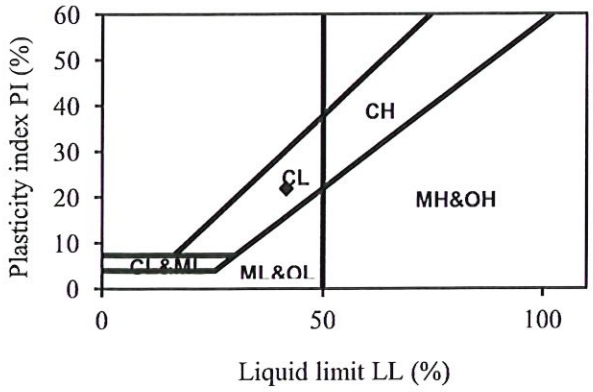
**Liquid limit (%) = 41.58**
**Slope of flow line = 0.141**

| Set # | Tare mass (g) Mc | Tare with wet soil (g) Mw | Tare with dry soil (g) Md | Water content (%) w |
|---|---|---|---|---|
| *1* | *11.06* | *20.68* | *19.10* | 19.65 |
| *2* | *11.14* | *21.48* | *19.78* | 19.68 |
| *3* | *11.12* | *21.71* | *19.97* | 19.66 |
| *4* | *11.30* | *20.66* | *19.13* | 19.54 |

**Plastic limit (%) = 19.63**




**Liquid limit (%) = *42***
**Plastic limit (%) = *20***
**Plasticity index (%) = *22***

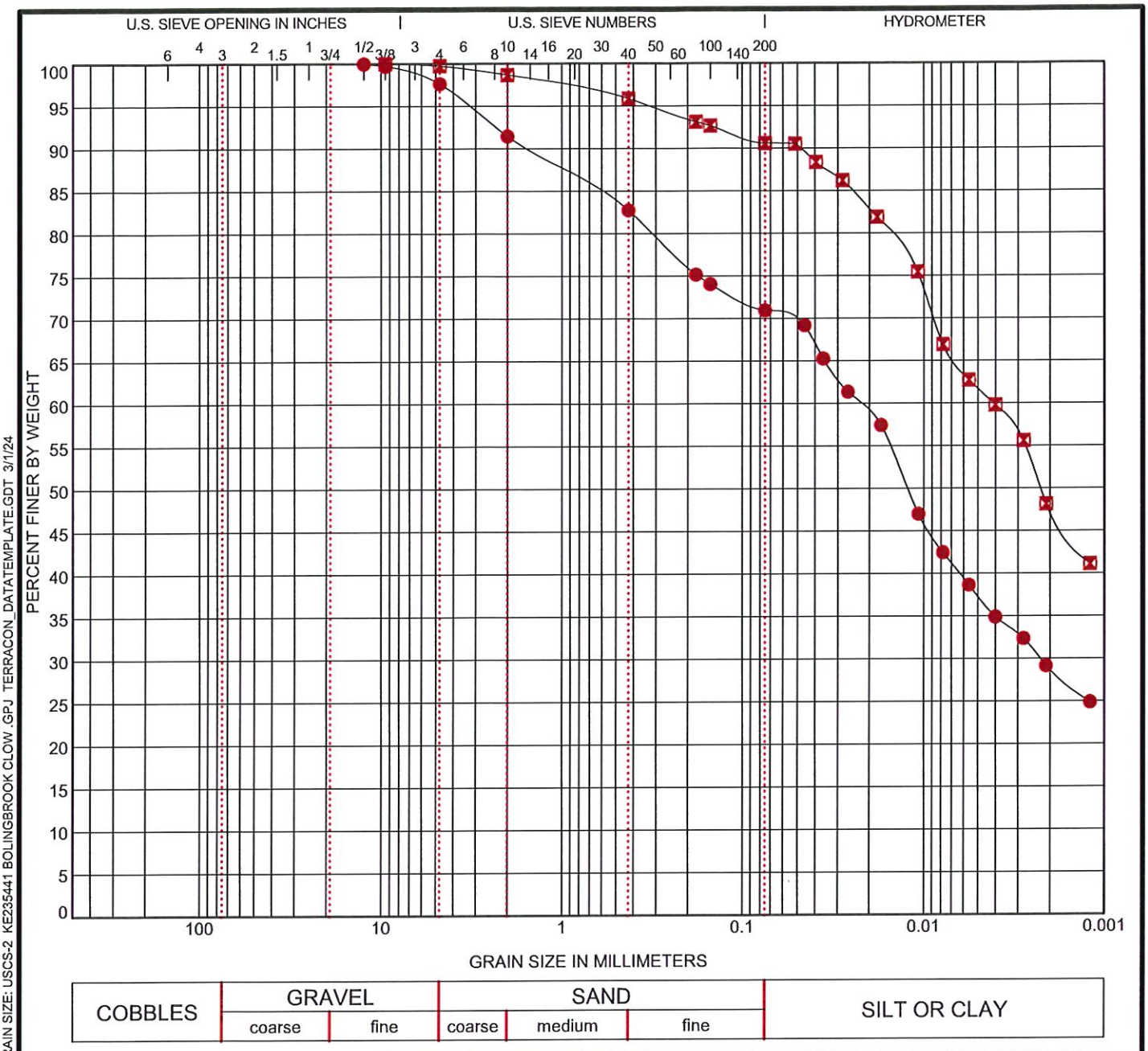
Prepared by: _____ Date: _____

Checked by: _____ Date: _____

AASHTO ACCREDITATION PROGRAM

# GRAIN SIZE DISTRIBUTION

**ASTM D422 / ASTM C136**




| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

| Boring ID | Depth (Ft) | USCS Classification | WC (%) | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ● B-03 | 1 | LEAN CLAY with SAND (CL) | | 41 | 18 | 23 | | |
| ⊠ B-11 | 3.5 | LEAN CLAY (CL) | 22.3 | 42 | 20 | 22 | | |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Silt | %Fines | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ● B-03 | 0 | 12.5 | 0.023 | 0.002 | | 0.0 | 2.3 | 26.7 | 33.6 | | 37.4 |
| ⊠ B-11 | 3.5 | 9.5 | 0.004 | | | 0.0 | 0.3 | 9.1 | 28.9 | | 61.7 |

PROJECT: Bolingbrook Clow International Airport Construct Replacement Parallel Taxiway
SITE: 130 Clow International Parkway Bolingbrook, IL

Terracon
1145 N Main St
Lombard, IL

PROJECT NUMBER: KE235441
CLIENT: Kimley-Horn and Associates Inc Chicago, IL
EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 KE235441 BOLINGBROOK CLOW .GPJ TERRACON_DATATEMPLATE.GDT 3/1/24

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# LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT

**ASTM D 1557, Method B**

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job:** KE235441
**Type/Condition:** *bulk / moist*
**Preparation method:** dry
**Rammer type:** mechanical
**Rammer face:** circular
**As Received Water Content:** 19.05%

**Analyst Name:** L. Varzaru
**Date Received:** 2/14/2024
**Date Tested:** 2/20/2024
**Soil Sample ID/Location:** B-3 (Bulk)
**Sample Description:** SANDY LEAN CLAY w/ GRAVEL (CL)

| | | |
|---|---|---|
| **Total Mass (g):** | 6897.1 | |
| **3/4 sieve mass (g):** | 94.4 | removed |
| **3/8 sieve mass (g):** | 219.3 | removed |
| **#4 sieve mass (g):** | 285.1 | replaced |

| Mass of soil and mold (g) | Mass of can and wet soil (g) Mw | Mass of can and dry soil (g) Md | Mass of can (g) Mc | Water content (%) |
|---|---|---|---|---|
| 6128 | 163.8 | 149.4 | 31.3 | 12.2 |
| | 165.5 | 151.2 | 30.2 | 11.9 |
| | 168.9 | 154.2 | 31.1 | 12.0 |
| 6203 | 171.6 | 154.4 | 30.2 | 13.8 |
| | 169.9 | 153.1 | 31.2 | 13.8 |
| | 157.8 | 142.4 | 30.8 | 13.8 |
| 6211 | 186.8 | 165.4 | 31.3 | 15.9 |
| | 153.0 | 136.4 | 31.3 | 15.8 |
| | 170.9 | 152.2 | 31.1 | 15.5 |
| 6159 | 146.4 | 128.8 | 31.1 | 18.0 |
| | 147.3 | 129.6 | 31.4 | 18.0 |
| | 155.3 | 136.3 | 31.0 | 18.0 |
| | | | | |

| Mass of soil and mold (g) M | Average water content (%) w | Dry unit weight (pcf) $\gamma_d$ |
|---|---|---|
| 6128 | 12.0 | 117.1 |
| 6203 | 13.8 | 119.6 |
| 6211 | 15.7 | 118.1 |
| 6159 | 18.0 | 112.9 |
| | | |

Mold ID = 1
Volume of Mold = 933 cm³
Mass of mold $M_m$ = 4169.00 g
Estimated specific gravity $G_s$ = 2.77

| | ASTM |
|---|---|
| **Optimum moisture (%) =** | **14.0** |
| **Maximum dry unit weight (pcf) =** | **119.6** |

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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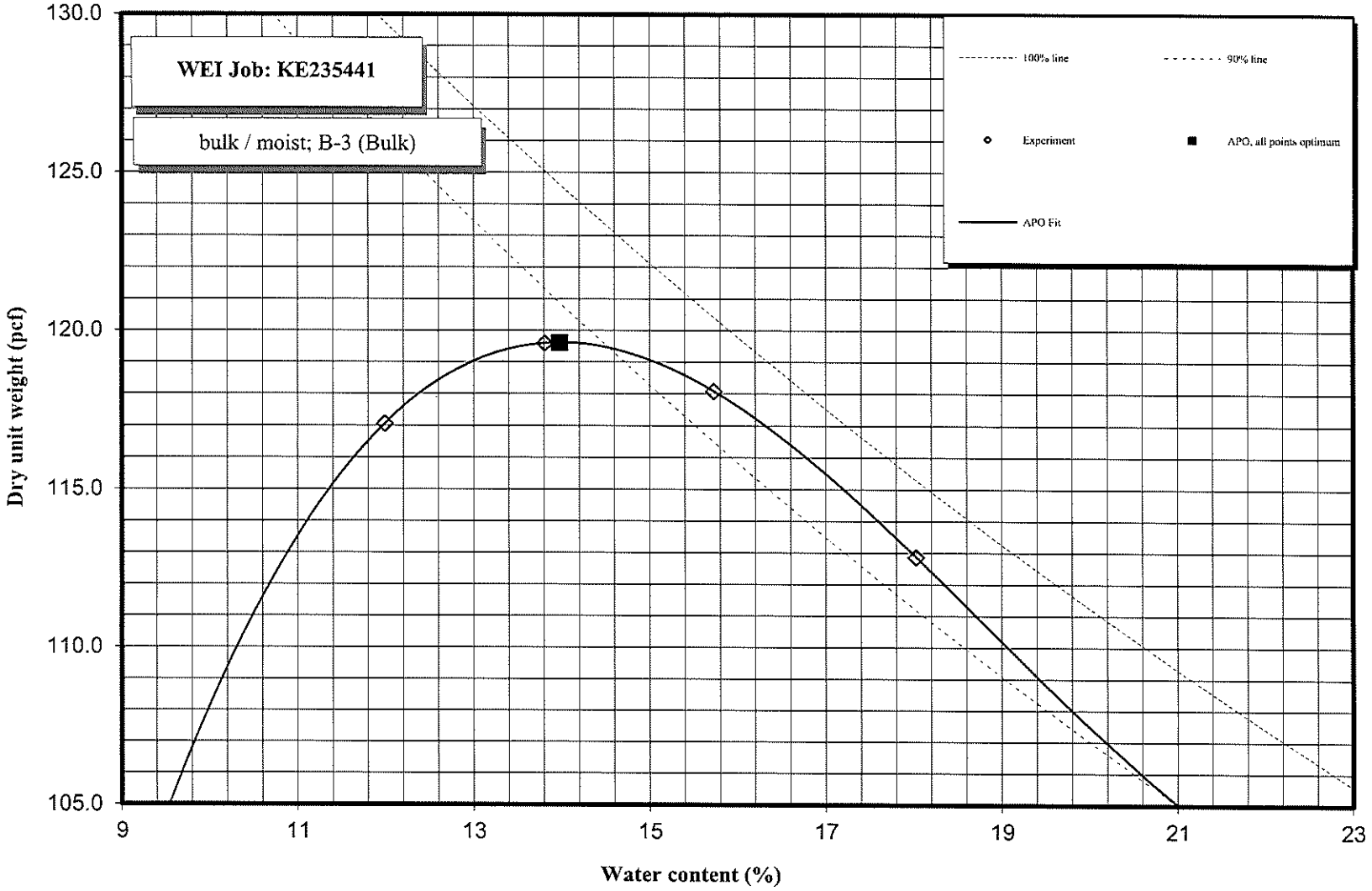
# MOISTURE--DENSITY RELATIONSHIP
## ASTM D 1557, Method B, Modified Effort



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# CALIFORNIA BEARING RATIO of LABORATORY-COMPACTED SOILS

**ASTM D 1883**

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job No.:** KE235441

**Analyst Name:** M. Ciapas
**Test Date:** 2/26/2024
**Soil Sample:** B-03 (Bulk)
**Sample Description:** Brown LEAN CLAY w/ SAND (CL)
**Surcharge Mass:** 10 lbs.

Condition of sample: **soaked**

% Sand and Gravel = NA
% Silt = NA
% Clay = NA
Additional tests run on sample: NA

ASTM D 1557 Method A
Optimum moisture (%) = 14.0
Maximum dry unit weight (pcf) = 119.6

| | Compaction | | After Soaking | |
|---|---|---|---|---|
| | Before | After | top 1" | Average |
| Mass of tare (g) = | 22.20 | 22.20 | 31.32 | 20.63 |
| Mass of tare and wet soil (g) = | 99.00 | 129.00 | 154.73 | 20.84 |
| Mass of tare and dry soil (g) = | 89.46 | 115.66 | 130.01 | 20.62 |
| **Moisture content (%) =** | **14.18** | **14.27** | **25.05** | **20.70** |

| | | |
|---|---|---|
| Mass of mold (g) = | 7297.00 | 7297.00 |
| Height of sample (in) = | 4.594 | 4.722 |
| Diameter of mold (in) = | 5.990 | 5.990 |
| Mass of mold and wet soil (g) = | 11486.50 | 11744.00 |
| **Dry unit weight (pcf) =** | **107.99** | **105.50** |
| **% Compaction =** | 90.3 | |

Initial swell reading ($10^{-3}$ in) = 132
Final swell reading ($10^{-3}$ in) = 260
**% Swell =** 2.79

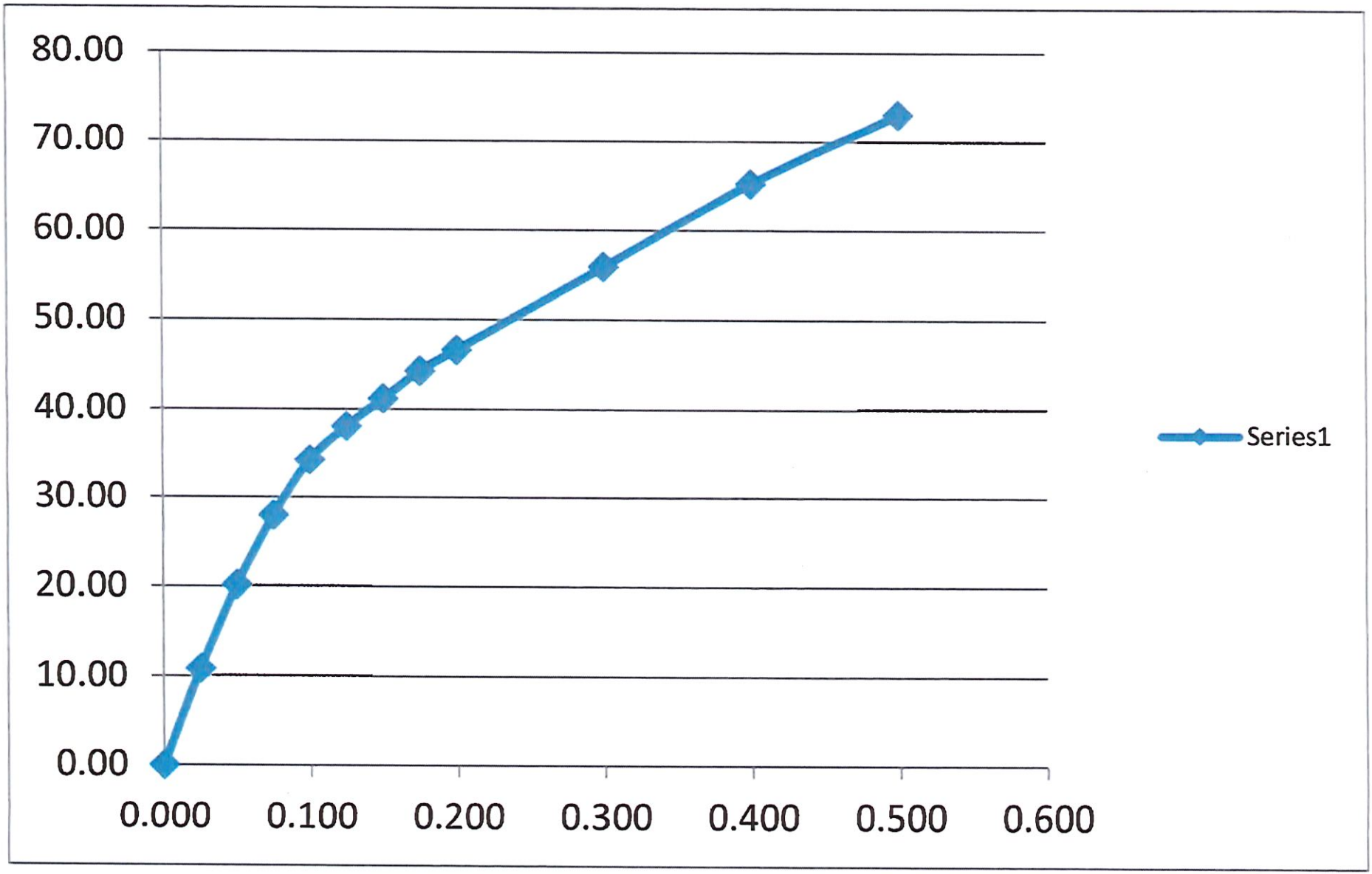
Ring Factor = 9.3223
Piston Area ($in^2$) = 3

| Penetration | Dial Reading | Load | Stress | CBR Value |
|---|---|---|---|---|
| in | $10^{-4}$ in | lbs | psi | % |
| 0.000 | 0.0 | 0.00 | 0.00 | |
| 0.025 | 3.5 | 32.63 | 10.88 | |
| 0.050 | 6.5 | 60.59 | 20.20 | |
| 0.075 | 9.0 | 83.90 | 27.97 | |
| **0.100** | **11.0** | **102.55** | **34.18** | **3.4** |
| 0.125 | 12.3 | 114.20 | 38.07 | |
| 0.150 | 13.3 | 123.52 | 41.17 | |
| 0.175 | 14.3 | 132.84 | 44.28 | |
| **0.200** | **15.0** | **139.83** | **46.61** | **3.1** |
| 0.300 | 18.0 | 167.80 | 55.93 | 2.9 |
| 0.400 | 21.0 | 195.77 | 65.26 | 2.8 |
| 0.500 | 23.5 | 219.07 | 73.02 | 2.8 |

DESIGNATED CBR = 3.4

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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# CALIFORNIA BEARING RATIO of LABORATORY-COMPACTED SOILS
## ASTM D 1883

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job No.:** KE235441

**Analyst Name:** M. Ciapas
**Test Date:** 2/26/2024
**Soil Sample:** B-03 (Bulk)
**Sample Description:** Brown LEAN CLAY w/ SAND (CL)
**Surcharge Mass:** 10 lbs.

Condition of sample: **soaked**

% Sand and Gravel = NA
% Silt = NA
% Clay = NA
Additional tests run on sample: NA

ASTM D 1557 Method A
Optimum moisture (%) = 14.0
Maximum dry unit weight (pcf) = 119.6

| | Compaction | | After Soaking | |
|---|---|---|---|---|
| | Before | After | top 1" | Average |
| Mass of tare (g) = | 22.10 | 22.50 | 21.89 | 18.35 |
| Mass of tare and wet soil (g) = | 97.60 | 80.90 | 186.30 | 18.15 |
| Mass of tare and dry soil (g) = | 88.25 | 73.70 | 156.44 | 18.16 |
| **Moisture content (%) =** | **14.13** | **14.06** | **22.19** | **18.22** |

| | | |
|---|---|---|
| Mass of mold (g) = | 7328.50 | 7328.50 |
| Height of sample (in) = | 4.575 | 4.697 |
| Diameter of mold (in) = | 5.988 | 5.988 |
| Mass of mold and wet soil (g) = | 11740.10 | 11900.20 |
| **Dry unit weight (pcf) =** | **114.31** | **111.40** |
| **% Compaction =** | 95.6 | |

Initial swell reading ($10^{-3}$ in) = 419
Final swell reading ($10^{-3}$ in) = 541
**% Swell =** 2.67

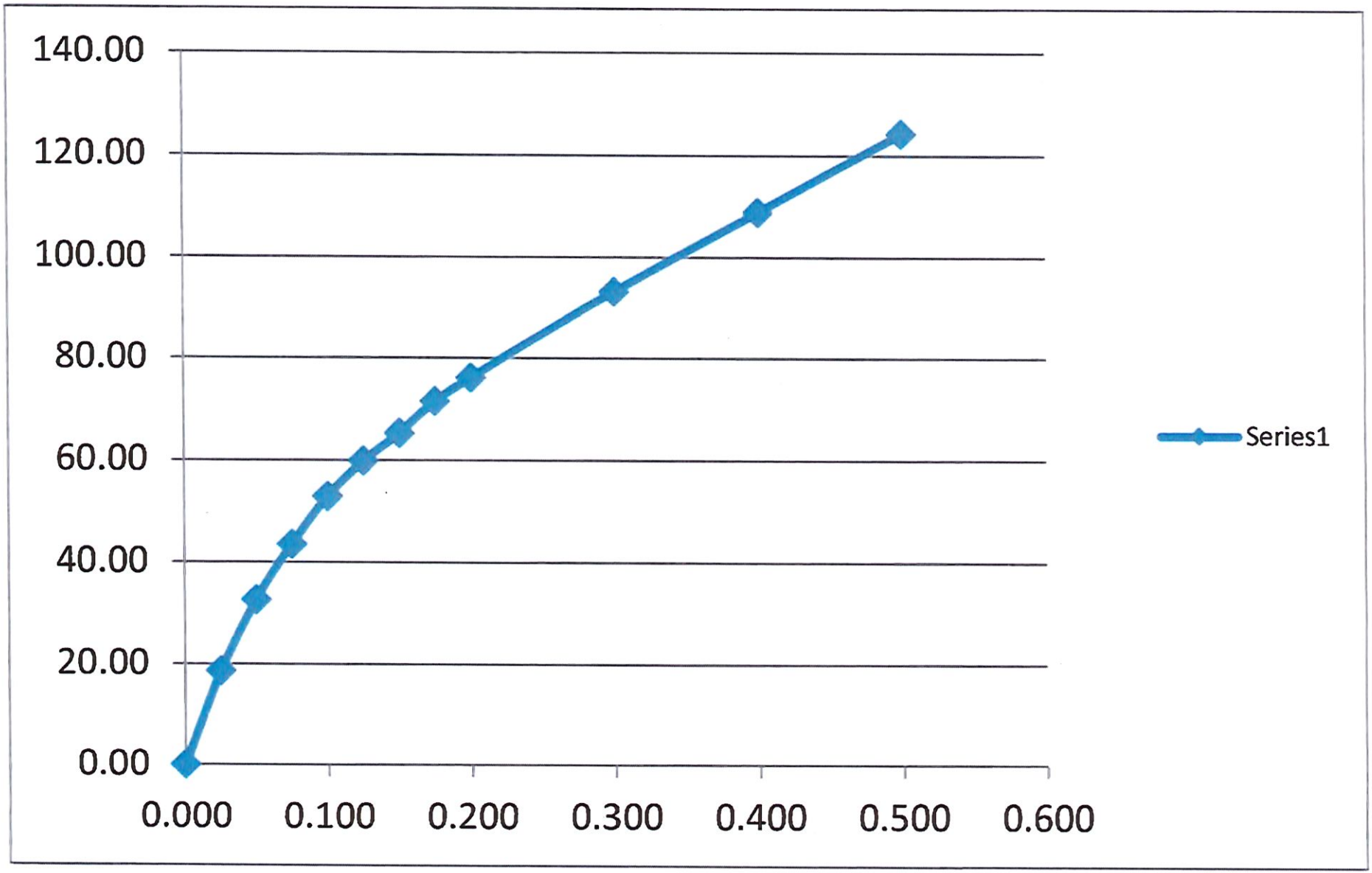
Ring Factor = 9.3223
Piston Area ($in^2$) = 3

| Penetration | Dial Reading | Load | Stress | CBR Value |
|---|---|---|---|---|
| in | $10^{-4}$ in | lbs | psi | % |
| 0.000 | 0.0 | 0.00 | 0.00 | |
| 0.025 | 6.0 | 55.93 | 18.64 | |
| 0.050 | 10.5 | 97.88 | 32.63 | |
| 0.075 | 14.0 | 130.51 | 43.50 | |
| **0.100** | **17.0** | **158.48** | **52.83** | **5.3** |
| 0.125 | 19.3 | 179.45 | 59.82 | |
| 0.150 | 21.0 | 195.77 | 65.26 | |
| 0.175 | 23.0 | 214.41 | 71.47 | |
| **0.200** | **24.5** | **228.40** | **76.13** | **5.1** |
| 0.300 | 30.0 | 279.67 | 93.22 | 4.9 |
| 0.400 | 35.0 | 326.28 | 108.76 | 4.7 |
| 0.500 | 40.0 | 372.89 | 124.30 | 4.8 |

DESIGNATED CBR = 5.3

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

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# CALIFORNIA BEARING RATIO of LABORATORY-COMPACTED SOILS
## ASTM D 1883

**Client:** Kimley-Horn and Associates Inc
**Project:** Bolingbrook Clow International Airport
**WEI Job No.:** KE235441

**Analyst Name:** M. Ciapas
**Test Date:** 2/26/2024
**Soil Sample:** B-03 (Bulk)
**Sample Description:** Brown LEAN CLAY w/ SAND (CL)
**Surcharge Mass:** 10 lbs.

Condition of sample: **soaked**

% Sand and Gravel = NA
% Silt = NA
% Clay = NA
Additional tests run on sample: NA

ASTM D 1557 Method A
Optimum moisture (%) = 14.0
Maximum dry unit weight (pcf) = 119.6

| | Compaction | | After Soaking | |
|---|---|---|---|---|
| | Before | After | top 1" | Average |
| Mass of tare (g) = | 22.30 | 22.10 | 31.13 | 16.78 |
| Mass of tare and wet soil (g) = | 100.30 | 118.00 | 177.72 | 16.93 |
| Mass of tare and dry soil (g) = | 90.70 | 106.17 | 152.50 | 16.61 |
| **Moisture content (%) =** | **14.04** | **14.07** | **20.78** | **16.77** |

| | | |
|---|---|---|
| Mass of mold (g) = | 7340.80 | 7340.80 |
| Height of sample (in) = | 4.563 | 4.658 |
| Diameter of mold (in) = | 5.994 | 5.994 |
| Mass of mold and wet soil (g) = | 11900.30 | 11995.20 |
| **Dry unit weight (pcf) =** | **118.32** | **115.54** |
| **% Compaction =** | 98.9 | |

Initial swell reading ($10^{-3}$ in) = 235
Final swell reading ($10^{-3}$ in) = 330
**% Swell =** 2.08

Ring Factor = 9.3223
Piston Area ($in^2$) = 3

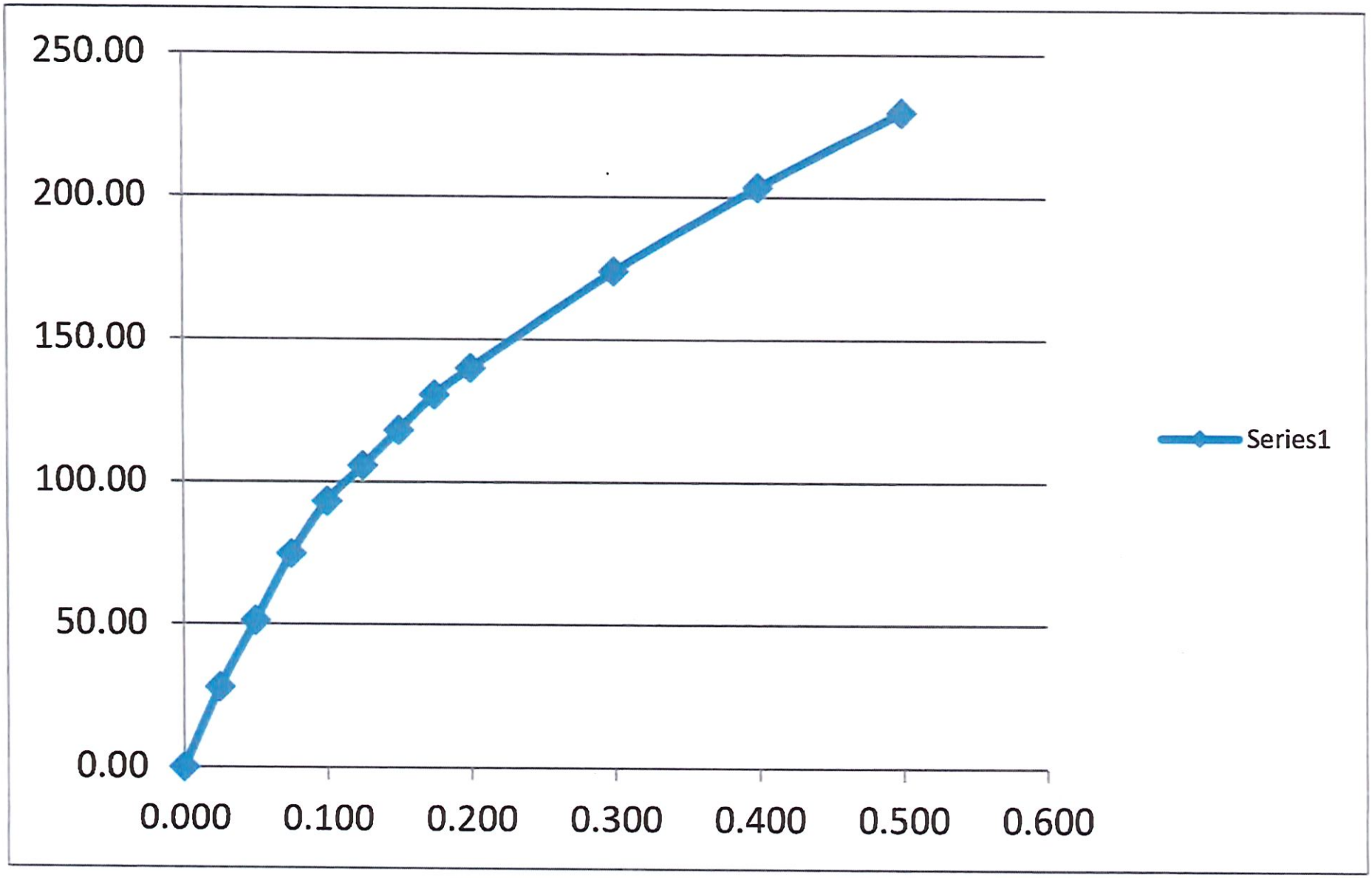
| Penetration | Dial Reading | Load | Stress | CBR Value |
|---|---|---|---|---|
| in | $10^{-4}$ in | lbs | psi | % |
| 0.000 | 0.0 | 0.00 | 0.00 | |
| 0.025 | 9.0 | 83.90 | 27.97 | |
| 0.050 | 16.5 | 153.82 | 51.27 | |
| 0.075 | 24.0 | 223.74 | 74.58 | |
| **0.100** | **30.0** | **279.67** | **93.22** | **9.3** |
| 0.125 | 34.0 | 316.96 | 105.65 | |
| 0.150 | 38.0 | 354.25 | 118.08 | |
| 0.175 | 42.0 | 391.54 | 130.51 | |
| **0.200** | **45.0** | **419.50** | **139.83** | **9.3** |
| 0.300 | 56.0 | 522.05 | 174.02 | 9.2 |
| 0.400 | 65.5 | 610.61 | 203.54 | 8.8 |
| 0.500 | 74.0 | 689.85 | 229.95 | 8.8 |

DESIGNATED CBR = 9.3

Prepared by: _____ Date: _____

Checked by: _____ Date: _____

AASHTO ACCREDITATION PROGRAM




N:\Projects\2023\KE235441\Working Files\Laboratory-Field Data-Boring Logs\Lab\RPT_Wang_MAC_KE235441_B03_100%_20240301

# Supporting Information

**Contents:**

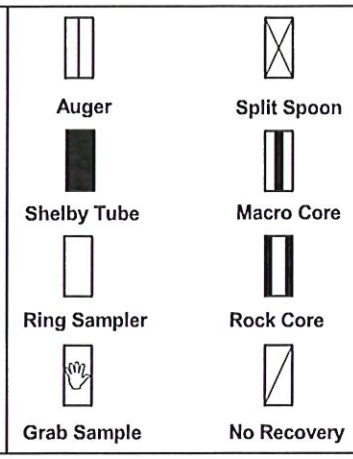
General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

# GENERAL NOTES

## DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

**SAMPLING**




**WATER LEVEL**

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

**FIELD TESTS**

| | |
|---|---|
| (P) | Calibrated hand penetromter |
| (T) | Torvane |
| (b/f) | Standard Penetration Test (blows per foot) |
| (PID) | Photo-Ionization Detector |
| (OVA) | Organic Vapor Analyzer |
| (B) | Rimac bulge failure |
| (S) | Rimac shear failure |
| (NP) | Non-Plastic |
| (RDR) | Relative Drilling Resistance Criteria |

## DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

## LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

**STRENGTH TERMS**

| RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts. | | | CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance | | | |
|---|---|---|---|---|---|---|
| **Descriptive Term (Density)** | **Standard Penetration or N-Value Blows/Ft.** | **Ring Sampler Blows/Ft.** | **Descriptive Term (Consistency)** | **Unconfined Compressive Strength, Qu, psf** | **Standard Penetration or N-Value Blows/Ft.** | **Ring Sampler Blows/Ft.** |
| Very Loose | 0 - 3 | 0 - 6 | Very Soft | less than 500 | 0 - 1 | < 3 |
| Loose | 4 - 9 | 7 - 18 | Soft | 500 to 1,000 | 2 - 4 | 3 - 4 |
| Medium Dense | 10 - 29 | 19 - 58 | Medium-Stiff | 1,000 to 2,000 | 4 - 8 | 5 - 9 |
| Dense | 30 - 50 | 59 - 98 | Stiff | 2,000 to 4,000 | 8 - 15 | 10 - 18 |
| Very Dense | > 50 | ≥ 99 | Very Stiff | 4,000 to 8,000 | 15 - 30 | 19 - 42 |
| | | | Hard | > 8,000 | > 30 | > 42 |

### RELATIVE PROPORTIONS OF SAND AND GRAVEL

| Descriptive Term(s) of other constituents | Percent of Dry Weight |
|---|---|
| Trace | < 15 |
| With | 15 - 29 |
| Modifier | > 30 |

### GRAIN SIZE TERMINOLOGY

| Major Component of Sample | Particle Size |
|---|---|
| Boulders | Over 12 in. (300 mm) |
| Cobbles | 12 in. to 3 in. (300mm to 75mm) |
| Gravel | 3 in. to #4 sieve (75mm to 4.75 mm) |
| Sand | #4 to #200 sieve (4.75mm to 0.075mm |
| Silt or Clay | Passing #200 sieve (0.075mm) |

### RELATIVE PROPORTIONS OF FINES

| Descriptive Term(s) of other constituents | Percent of Dry Weight |
|---|---|
| Trace | < 5 |
| With | 5 - 12 |
| Modifier | > 12 |

### PLASTICITY DESCRIPTION

| Term | Plasticity Index |
|---|---|
| Non-plastic | 0 |
| Low | 1 - 10 |
| Medium | 11 - 30 |
| High | > 30 |

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# Unified Soil Classification System

| Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A] | | | | Soil Classification | |
|---|---|---|---|---|---|
| | | | | Group Symbol | Group Name [B] |
| **Coarse-Grained Soils:** More than 50% retained on No. 200 sieve | **Gravels:** More than 50% of coarse fraction retained on No. 4 sieve | **Clean Gravels:** Less than 5% fines [C] | Cu≥4 and 1≤Cc≤3 [E] | GW | Well-graded gravel [F] |
| | | | Cu<4 and/or [Cc<1 or Cc>3.0] [E] | GP | Poorly graded gravel [F] |
| | | **Gravels with Fines:** More than 12% fines [C] | Fines classify as ML or MH | GM | Silty gravel [F, G, H] |
| | | | Fines classify as CL or CH | GC | Clayey gravel [F, G, H] |
| | **Sands:** 50% or more of coarse fraction passes No. 4 sieve | **Clean Sands:** Less than 5% fines [D] | Cu≥6 and 1≤Cc≤3 [E] | SW | Well-graded sand [I] |
| | | | Cu<6 and/or [Cc<1 or Cc>3.0] [E] | SP | Poorly graded sand [I] |
| | | **Sands with Fines:** More than 12% fines [D] | Fines classify as ML or MH | SM | Silty sand [G, H, I] |
| | | | Fines classify as CL or CH | SC | Clayey sand [G, H, I] |
| **Fine-Grained Soils:** 50% or more passes the No. 200 sieve | **Silts and Clays:** Liquid limit less than 50 | **Inorganic:** | PI > 7 and plots above "A" line [J] | CL | Lean clay [K, L, M] |
| | | | PI < 4 or plots below "A" line [J] | ML | Silt [K, L, M] |
| | | **Organic:** | $\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$ | OL | Organic clay [K, L, M, N] / Organic silt [K, L, M, O] |
| | **Silts and Clays:** Liquid limit 50 or more | **Inorganic:** | PI plots on or above "A" line | CH | Fat clay [K, L, M] |
| | | | PI plots below "A" line | MH | Elastic silt [K, L, M] |
| | | **Organic:** | $\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$ | OH | Organic clay [K, L, M, P] / Organic silt [K, L, M, Q] |
| **Highly organic soils:** | Primarily organic matter, dark in color, and organic odor | | | PT | Peat |

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.