

Project Manual

for

Phase 2 Clear Creek Trail Extension to F.W. Kent Park

**Johnson County Conservation
Oxford, Iowa**

**Issue for Bid
February 24, 2026**



Project Manual

for

Phase 2 Clear Creek Trail Extension to F.W. Kent Park

Johnson County Conservation Oxford, Iowa

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Jerry A. Selbher


(signature)

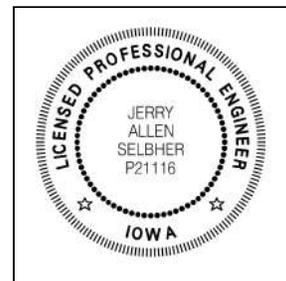
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(date)

Discipline: Civil Engineer, Iowa License No. P21116

License expires December 31, 2027.

Pages or sheets covered by this seal: As listed on Table of Contents



A Stanley Group Company
Engineering, Environmental and Construction Services - Worldwide

PHASE 2 CLEAR CREEK TRAIL EXTENSION TO F.W. KENT PARK

JOHNSON COUNTY CONSERVATION
OXFORD, IOWA

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

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Attachment

Geotechnical Evaluation Report – Clear Creek Trail Half Moon Avenue to F.W. Kent Park, Johnson County, Iowa
– June 19, 2024

Notice is hereby given that Johnson County Conservation will receive Bids at Johnson County Conservation, Conservation Headquarters at F.W. Kent Park, 2048 Highway 6 NW, Oxford, IA 52322 until March 25, 2026 at 3:00 p.m., local time, for Phase 2 Clear Creek Trail Extension To F.W. Kent Park. Bids will be publicly opened and read aloud at 3:05 p.m. at the Conservation Headquarters. Bids will be reviewed and acted upon at the regular board meeting on April 21, 2026, at 5:30 PM, at the Conservation Education Center at F.W. Kent Park, 2048 Highway 6 NW, Oxford, Iowa 52322, or at such later time and place as may then be fixed. Regular council meetings are held on the 3rd Tuesday of each month, subject to change by the Board.

General summary of Work to be performed:

CONTRACT – The Work is generally described as clearing and grubbing, contractor furnished fill, trail and abutment grading, trail bridge abutments, steel piles, installation of three (3) pre-engineered truss bridges, metal railing, storm sewers structures and pipes, signing, revetment, traffic control, erosion control, and restoration.

Work shall be in accordance with the Bidding Documents, including the Project Manual and Drawings, which are on file at the Issuing Office of the Engineer, Stanley Consultants, Inc., Des Moines, Iowa, from Ms. Mandy Hoag at bidding@stanleygroup.com, 563-264-6657. Prospective Bidders may examine the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of 8:00 a.m. and 4:30 p.m., and may obtain copies of the Bidding Documents from the Issuing Office as described below. Proposed drawings, specifications, form of contract and estimated total cost for consideration for the public hearing will be available by February 17, 2026, at the Johnson County Auditor's Office, 913 South Dubuque Street, First Floor, Iowa City, IA 52240 or at the office of the Johnson County Conservation Board, Headquarters, 2048 US-6 NW, Oxford, IA 52322.

Bidding Documents may be obtained from the Issuing Office during the hours indicated above. Bidding Documents are available as portable document format (PDF) files at no charge. Alternatively, printed Bidding Documents may be obtained from the Issuing Office via coordinated in-person pick-up for \$25 per copy. Checks are to be made payable to Stanley Consultants, Inc. Additional Bidding Documents may be obtained at the same cost but are nonrefundable.

Bid security and Bidder Status Form shall be furnished in accordance with the Instructions to Bidders.

Each Bid shall be accompanied, in a separate sealed envelope, by Bid security in an amount of not less than 5% of the Bid. Bid Bonds must be executed by corporations authorized to contract as Surety in the State of Iowa and in a form described in the Bidding Documents. Bid security shall be forfeited if the Bidder fails or refuses to sign and deliver a signed Agreement and furnish required contract security.

Each Bid shall be accompanied with a Bidder Status Form. Failure to submit a fully completed Bidder Status Form with the Bid may result in the bid being deemed nonresponsive and rejected.

All Bids shall be submitted in triplicate, on forms provided with the Project Manual, on or before the time specified above.

Upon notification of award, Successful Bidder shall furnish contract security in the form of performance and payment bonds described in the Bidding Documents.

The Owner reserves the right to defer acceptance of any Bid for a period not to exceed 60 calendar days after the date Bids are to be received.

The Owner reserves the right to reject any or all Bids, to waive informalities or technicalities in any Bid and to accept the Bid which it deems to be in the best interest of the Owner.

JOHNSON COUNTY CONVERSATION

By _____
Brad Freidhof
Director

Date _____

1.01 DEFINED TERMS

- A. Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
 - 1. Issuing Office – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

1.02 COPIES OF BIDDING DOCUMENTS

- A. Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the Advertisement for Bids.
- B. Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- C. Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

1.03 QUALIFICATIONS OF BIDDERS

- A. To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 10 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
 - 1. Bidder shall be qualified for Iowa DOT work. The project is not bid by DOT nor DOT administered or inspected.
 - 2. Evidence of Bidder's authority to do business in the state where the Project is located.
 - 3. Bidder's state or other contractor license number, if applicable.
 - 4. Subcontractor and Supplier qualification information; coordinate with provisions of Article Subcontractors, Suppliers, and Others.
 - 5. Other required information regarding qualifications.
- B. Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- C. No requirement in this Article to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- D. Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

1.04 SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- B. Existing site conditions:
 - 1. Subsurface and Physical Conditions; Hazardous Environmental Conditions:
 - a. The Supplementary Conditions identify:

- 1) those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - 2) those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - 3) reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site. There are no known reports of Hazardous Environmental Conditions.
 - 4) Technical Data contained in such reports and drawings.
- b. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- c. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
2. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
 3. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.
- C. Site visit and testing by bidders:
1. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
 2. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 3. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
 4. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
 5. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- D. Owner's safety program: Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.
- E. Other work at the Site: Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such

other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

1.05 BIDDER'S REPRESENTATIONS

- A. It is the responsibility of each Bidder before submitting a Bid to:
1. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
 2. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
 3. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
 4. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
 5. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
 6. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
 7. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
 8. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
 9. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
 10. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

1.06 INTERPRETATIONS AND ADDENDA

- A. All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing.

Mr. Jerry Selbher, P.E.
Stanley Consultants, Inc.
Suite 300
100 Court Avenue
Des Moines, IA 50309-2200
salbherjerry@stanleygroup.com
515-291-0709

- B. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded by Engineer as having received the Bidding

Documents. Questions received less than 3 days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- C. Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

1.07 BID SECURITY

- A. A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- B. The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- C. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Agreement or 60 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- D. Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within 7 days after the Bid opening.

1.08 IOWA BIDDER STATUS FORM

- A. Bidder Status Form is required by the Iowa Labor Commissioner, pursuant to the Iowa Administrative Code rule 875-156.2(1). Bidder shall complete and submit Bidder Status Form, signed by an authorized representative of the Bidder, with their Bid.
- B. Under Iowa Administrative Code rule 875-156.2(1), failure to provide the Bidder Status Form with the Bid may result in the bid being deemed nonresponsive and may result in the Bid being rejected.
- C. The Worksheet: Authorized to Transact Business from the Labor Commissioner is included and may be used to assist Bidders in completing the Bidder Status Form.

1.09 CONTRACT TIMES

- A. The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

1.10 LIQUIDATED DAMAGES

- A. Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

1.11 SUBSTITUTE AND "OR-EQUAL" ITEMS

- A. The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or

equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

- B. All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

1.12 SUBCONTRACTORS, SUPPLIERS AND OTHERS

- A. A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- B. Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- C. The apparent Successful Bidder, and any other Bidder so requested, shall within 10 days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for all portions of the Work.
- D. If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- E. If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

1.13 PREPARATION OF BID

- A. Bid Form is included with the Bidding Documents.
 - 1. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, unit adjustment price item, and unit price item listed therein.
 - 2. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- B. The corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary.
- C. Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

- D. Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- E. Bid by an individual shall show the Bidder's name and official address.
- F. Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- G. All names shall be printed in ink below the signatures.
- H. Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- I. Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- J. Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

1.14 BASIS OF BID; COMPARISON OF BIDS

- A. Unit Price:
 - 1. Bidders shall submit a Bid on a unit price basis for each item of Work listed in Section 00 43 22 – Unit Price Schedule.
 - 2. The Bid Price for each unit price Bid item will be the product of the Estimated Quantity (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding Bid Unit Price offered by the Bidder. The total of all unit price Bid items will be the sum of these Bid Prices; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
 - 3. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- B. Allowances: For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.
- C. Unit adjustment prices:
 - 1. Submit unit adjustment prices for items listed in Bid Form and described in Contract Documents.
 - 2. Owner may accept or reject proposed unit adjustment prices without invalidating remainder of Bid or any Agreement based thereon.
 - 3. Owner reserves right to change quantities to be furnished. Unit prices bid control, provided, however, if actual quantities of any unit price item increase or decrease from estimated quantities by more than 20%, Owner and Contractor may renegotiate the unit price for such items furnished under the Contract Documents. If Owner and Contractor cannot otherwise agree on a new unit price, the provisions of paragraph 11.9 of the General Conditions shall apply.
 - 4. Contractor's compensation will be computed on basis of final quantities incorporated in completed Work.
 - 5. In event of discrepancies between unit prices and unit price extensions listed in Bid, unit prices shall govern.
 - 6. Each Bid shall cover complete Work including costs incidental thereto. Bid shall include all costs of permits, fees, and similar expenses.
 - 7. Products of proposed substitute manufacturers will not be considered in determining low Bidder.
 - 8. Substitutions for Base Bid Items: Submit price for products of each substitute manufacturer submitted by Bidder.

9. Substitutions for nonBase Bid Items: See General Requirements.

1.15 SUBMITTAL OF BID

- A. With each copy of the Bidding Documents, a Bidder is furnished a copy of the Bid Form and the Bid Bond Form. The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- B. A Bid shall be received no later than the date and time prescribed and at the place indicated in the Advertisement for Bids and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."
- C. Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.
- D. Oral, telephonic, telegraphic, facsimile, or emailed bids. Bids will not be considered.

1.16 MODIFICATION AND WITHDRAWAL OF BID

- A. Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- B. If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph A. and submit a new Bid prior to the date and time for the opening of Bids.
- C. If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

1.17 OPENING OF BIDS

- A. Bids will be opened at the time and place indicated in the Advertisement for Bids and, unless obviously nonresponsive, read aloud publicly. A bid tabulation will be available upon written request.

1.18 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- A. Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

1.19 EVALUATION OF BIDS AND AWARD OF CONTRACT

- A. Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

- B. If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- C. Evaluation of Bids:
 - 1. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - 2. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- D. In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and suppliers proposed for those portions of the Work for which the identity of Subcontractors and suppliers must be submitted as provided in the Bidding Documents.
- E. Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or suppliers.

1.20 BONDS AND INSURANCE

- A. Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, maintenance bond, and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

1.21 SIGNING OF AGREEMENT

- A. When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement.
- B. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner.
- C. Within 10 days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

1.22 SALES AND USE TAXES

- A. Owner is exempt from Iowa state sales and use taxes on materials and equipment to be incorporated in the Work. Exemption No. 42-6004806. Said taxes shall not be included in the Bid. Refer to paragraph SC-7.09 of the Supplementary Conditions for additional information.
- B. After delivery of materials, Contractor shall submit to Owner a statement of taxes of foregoing descriptions which he has paid on materials and equipment incorporated in complete construction. Statement shall be in format and with supporting data suitable for Owner's use in requesting refund of such taxes from the State of Iowa. Owner will retain refund when received from State of Iowa.
- C. Complete information on qualifying materials and supplies can be found at www.state.ia.us/tax, the Iowa Department of Revenue and Finance (IDRF) web site. Links can be found in the Business Taxes and Local Government categories. Bids submitted for this Project should be submitted on this basis.

1.23 SUSPENSION AND DEBARMENT

- A. Any Bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Nonprocurement Programs" will be prohibited from the bidding process. Anyone submitting a Bid who is listed In this publication will be determined to be a nonresponsive Bidder In accordance with 40 CFR part 31.
- B. Contractor's Suspension/Debarment Certification will be contained in the specifications; however, this certification should not preclude any interested party from ascertaining whether the certifying person is actually on the 'List of Parties Excluded from Federal Procurement and Nonprocurement Programs'.

END OF DOCUMENT

PROJECT AND CONTRACT IDENTIFICATION

This Bid pertains to Phase 2 Clear Creek Trail Extension To F.W. Kent Park Project, for Johnson County Conservation.

ARTICLE 1 - BID RECIPIENT

- 1.01 This Bid is submitted to: JOHNSON COUNTY CONSERVATION
CONSERVATION EDUCATION CENTER
F.W. KENT PARK
2048 US-6 NW
OXFORD, IA 52322
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
 - A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum Date
 - B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress and performance of the Work.
 - D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. Submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 - BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, noncompetitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 - BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) shown on attached Document 00 43 22 - Unit Price Schedule.

- A. Unit Price Bid: Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 - TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Contract Commencement Dates
- A. Early Start Date: June 1, 2026.
 - B. Late Start Date: April 5, 2027.
- 6.03 Bidder agrees that the Work will be substantially complete within 100 working days after the date when the Contract Times commence to run as provided in paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions within 100 working days after the date when the Contract Times commence to run.
- 6.04 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 - ATTACHMENTS TO THIS BID

- 8.01 The following documents are attached to and made a condition of this Bid:
- B. Required Bid security;
 - C. Required Iowa Bidder Status Form;
 - D. List of proposed Subcontractors;
 - E. List of proposed Suppliers;
 - F. List of Project References for Three (3) Similar Projects;
 - G. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - H. Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - I. Required Bidder Qualifications Statement with supporting data;

ARTICLE 8 - DEFINED TERMS

- 9.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

Bidder: *(Indicate correct name of bidding entity)*

By: _____
(Signature)

(Printed Name)
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(Signature)

Title: _____
(Printed Name)

Submittal Date: _____

Address for giving notices:

Telephone No. _____

Facsimile No. _____

Contact Name and email address: _____

Contractor's License Number: _____.

END OF DOCUMENT

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID

Bid Due Date:

Description *(Project Name and Include Location)*:

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

No.	Item Code	Description	Estimated Quantity	Unit	Bid Unit Price	Bid Price
1.	2101-0850001	CLEARING AND GRUBBING	0.5	ACRE	\$	\$
2.	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	3,370.0	CY	\$	\$
3.	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	107.0	CY	\$	\$
4.	2102-2710080	EXCAVATION, CLASS 10, UNSUITABLE OR UNSTABLE MATERIAL	54.0	CY	\$	\$
5.	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	750.0	CY	\$	\$
6.	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	3,370.0	CY	\$	\$
7.	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	66.3	TON	\$	\$
8.	2416-0100024	APRONS, CONCRETE 24 IN. DIA	2.0	EA	\$	\$
9.	2435-0140160	MANHOLE, STORM SEWER, SW-401, 60 IN.	1.0	EA	\$	\$
10.	2435-0251224	INTAKE, SW-512, 24 IN	2.0	EA	\$	\$
11.	2502-8212034	SUBDRAIN, LONGITUDINAL , (SHOULDER) 4 IN. DIA	250.0	LF	\$	\$
12.	2502-8215806	SUBDRAIN , TILE, 6 IN.	100.0	LF	\$	\$
13.	2505-8221305	SUBDRAIN OUTLET, DR-305	12.0	EA	\$	\$
14.	2503-0114218	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 18 IN.	184.0	LF	\$	\$
15.	2503-0114224	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN.	310.0	LF	\$	\$
16.	2519-3300400	FIELD FENCE BRACE PANELS	5.0	EA	\$	\$
17.	2519-4200040	REMOVAL AND REINSTALLATION OF FENCE, FIELD	871.0	LF	\$	\$
18.	2526-8285000	CONSTRUCTION SURVEY	1.0	LS	\$	\$
19.	2526-8285010	CONSTRUCTION SURVEY, MONUMENT PRESERVATION	1.0	LS	\$	\$
20.	2528-8445110	TRAFFIC CONTROL	1.0	LS	\$	\$
21.	2528-8445113	FLAGGER	10.0	EA		
22.	2533-4980005	MOBILIZATION	1.0	LS		
23.	2552-0000300	TRENCH COMPACTION TESTING	1.0	LS		
24.	2599-9999005	CONNECTION TO EXISTING WING WALL	1.0	EA		

No.	Item Code	Description	Estimated Quantity	Unit	Bid Unit Price	Bid Price
25.	2599-9999009	EASEMENT LIMIT FENCE	1,260.0	LF		
26.	2601-2634100	MULCHING	1.0	ACRE		
27.	2601-2634105	MULCHING, BONDED FIBER MATRIX	1.0	ACRE		
28.	2601-2636043	SEEDING AND FERTILIZING (RURAL)	1.0	ACRE		
29.	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	32.0	SQ		
30.	2601-2642100	STABILIZE CROP - SEED+FERTILIZE	1.0	ACRE		
31.	2602-0000020	SILT FENCE	1,875.0	LF		
32.	2602-0000030	SILT FENCE FOR DITCH CHECKS	579.0	LF		
33.	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	1,227.0	LF		
34.	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	245.0	LF		
35.	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	180.0	LF		
36.	2602-0010010	MOBILIZATIONS, EROSION CONTROL	12.0	EA		
37.	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	3.0	EA		
Bridge						
1.	2402-2720000	EXCAVATION, CLASS 20	95.0	CY		
2.	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	66.3	CY		
3.	2404-7775005	REINFORCING STEEL, EPOXY COATED	6,156.0	LB		
4.	2414-6460000	ORNAMENTAL METAL RAILING	80.0	LF		
5.	2429-0000100	PRE-ENGINEERED BRIDGE	3.0	EA		
6.	2501-0201057	PILES, STEEL, HP 10 X 57	1,560.0	LF		
TOTAL OF ALL BID PRICES						\$

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

- Yes No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).
- Yes No My company has an office to transact business in Iowa.
- Yes No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- Yes No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
- Yes No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

City, State, Zip: _____

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

City, State, Zip: _____

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

You may attach additional sheet(s) if needed. City, State, Zip: _____

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to bidders who are residents? Yes No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

**You must submit the completed form to the governmental body requesting bids
per 875 Iowa Administrative Code Chapter 156.**

This form has been approved by the Iowa Labor Commissioner.

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- Yes No My business is currently registered as a contractor with the Iowa Division of Labor.
- Yes No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- Yes No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- Yes No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- Yes No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- Yes No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- Yes No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- Yes No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- Yes No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

THIS AGREEMENT is by and between _____ (Owner)
and

(Contractor).

Owner and Contractor hereby agree as follows:

ARTICLE 1 - WORK

1.1 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as clearing, grubbing, contractor furnished fill, trail and abutment grading, trail bridge abutments, steel piles, installation of three pre-engineered truss bridges, metal railing, storm sewers structures and pipes, signing, revetment, traffic control, erosion control, and restoration.

ARTICLE 2 - THE PROJECT

2.1 The Project for which Work under the Contract Documents may be the whole or only a part is generally described as Phase 2 Clear Creek Trail Extension To F.W. Kent Park.

ARTICLE 3 - ENGINEER

3.1 The Project has been designed by Stanley Consultants, Inc.

3.2 The Owner has retained Stanley Consultants, Inc. (Engineer) to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.1 *Time of the Essence.* All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.2 *Contract Commencement.* Contractor shall commence work by Early Start Date, but no later than Late Start Date.

Early start date of June 1, 2026

Late start date of April 5, 2027

4.3 *Contract Times: Days.* The Work will be substantially completed within 100 working days after the date when the Contract Times commence to run as provided in paragraph 4.01 of General Conditions, and completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions within 100 working days after the date when Contract Times commence to run.

Refer to Iowa DOT 1101.03 for definition and 1108.02, E. for charging of working days. Strike the last sentence from 1108.02, E.4 "Working may be performed on Saturdays with no time charged". In 1108.02, E.4 modify the second sentence to include Saturdays in working days to be charged when the contractor does work.

Refer to Iowa DOT 1108.02, F for Winter Work. Working days will be charged for winter work. Strike all of 1108.02, F.1.b.

Refer to Iowa DOT 1108.02, H for the Weekly Report of Working Days on how working days are to be communicated and contested. Said report is also called the "Working Day Report".

Refer to Iowa DOT 1108.06 for temporary suspension of work.

4.4 *Liquidated Damages.* Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.1 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.2 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

- A. Substantial Completion: Contractor shall pay Owner \$1,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.2 above for Substantial Completion until the Work is substantially complete.
- B. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1,000 for each day that expires after such time until the Work is completed and ready for final payment.
- C. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.5 *Special Damages.* In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.2 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

4.6 After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.2 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.1 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Document 00 43 22 - Unit Price Schedule, attached hereto as an exhibit.

ARTICLE 6 - PAYMENT PROCEDURES

6.1 *Submittal and Processing of Payments.* Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.2 *Progress Payments; Retainage.* Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided in Paragraph 6.2.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

- A. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:
 - 1. 97% percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - 2. 97% of cost of materials and equipment not incorporated in the Work (with the balance being retainage). To qualify for payment of stored materials, materials must be stored on site and material invoices must be furnished to Owner.

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100% of the Work completed, less such amounts set off by Owner pursuant to paragraph 15.01. E. of the General Conditions and less 300% of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.3 *Final Payment.* Upon final completion and acceptance of the Work in accordance with paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said paragraph 15.06.

ARTICLE 7 - INTEREST

- 7.1 All amounts not paid when due shall bear interest at the rate of 0% per annum.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

- 8.1 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
 - F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 - I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 - J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 - CONTRACT DOCUMENTS

9.1 *Contents:* The Contract Documents consist of the following:

- A. This Agreement (pages 1 to , inclusive).
- B. Performance Bond (pages 1 to 3, inclusive).
- C. Payment Bond (pages 1 to 3, inclusive).
- D. Maintenance Bond (pages 1 to 3, inclusive).
- E. General Conditions (pages 1 to 38, inclusive).
- F. Supplementary Conditions (pages 1 to , inclusive).
- G. Drawings as listed on the Drawing Index Sheet.
- H. Addenda numbers to , inclusive.
- I. Exhibits to this Agreement (enumerated as follows):
 - 1. Contractor's Bid (pages to , inclusive) marked Exhibit .
- J. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - 1. Notice to Proceed.
 - 2. Instructions to Contractors.
 - 3. Change Orders.
 - 4. Field Orders.

9.2 The documents listed in paragraph 9.1 are attached to this Agreement (except as expressly noted otherwise above).

9.3 There are no Contract Documents other than those listed above in this Article 9.

9.4 The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.1 *Terms.* Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

10.2 *Assignment of Contract.* Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.3 *Successors and Assigns.* Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.4 *Severability.* Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.5 *Contractor's Certification.* Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.5:

- A. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
- B. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
- C. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
- D. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.6 *Other Provisions.* Owner stipulates that the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and Owner is the party that has furnished said General Conditions, and has plainly shown all modifications to the standard wording of such published document to the Contractor in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. This Agreement will be effective on _____, 20__ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____
(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest _____

Attest _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement.)

License No. _____
(Where applicable)

END OF DOCUMENT

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Contractor's Name and Corporate Seal *(seal)*

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

SURETY

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature *(attach power of attorney)*

Print Name

Title

Attest: _____
Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:
 - 3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
- 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 - 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
14. Definitions
 - 14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by

anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____
(Contractor name, complete address including ZIP Code and legal title)

as Principal, hereinafter called Contractor, and _____
(Surety name and complete address including ZIP Code)

_____ a corporation organized and existing under
the laws of the State of _____, with its principal office in the City of _____
as Surety, hereinafter called Surety, are held firmly bound unto _____
(Owner name, complete address including ZIP Code and legal title)

as Obligee, hereinafter called Owner, in the amount of _____
Dollars (_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors,
administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____
_____ entered into a contract with Owner for _____

in accordance with drawings and specifications prepared by _____

which contract is by reference made a part hereof, and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall, for a period of two (2) years from and after the date of completion and acceptance of same by Owner, replace any and all defects arising in the Work, whether resulting from defective materials or defective workmanship, after such period this obligation shall be null and void; otherwise it will remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the CONTRACT, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the CONTRACT in accordance with its terms and conditions, and
2. Shall save the Owner harmless from any claims, judgments, or liens arising from the Surety's failure to either remedy the default or to complete the CONTRACT in accordance with its terms and conditions in a timely manner.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the successors of Owner.

Signed and sealed this * _____ day of _____ 20_____

Principal Corporate Seal

(Contractor Name)

BY: _____ (Seal)

(Must be President, Vice President, Owner, Partner, Manager, Member,
or other duly Authorized Agent)

(Title)

Surety Corporate Seal

(Surety)

BY: _____ (Seal)

NOTE: Please attach Power of Attorney.

NOTE: Applicable sections of attached acknowledgments
must be completed and returned as part of the bond.

*Power of Attorney must be certified on this date or later.

APPROVED AG 09-12-16

ACKNOWLEDGMENTS

Acknowledgment by Principal if individual or Partnership

1. STATE OF _____
2. County of _____ to-wit:
3. I, _____, a Notary Public in and for the
4. county and state aforesaid, do hereby certify that _____
whose name is signed to the foregoing writing, has this day acknowledged the same before me in my said county.
5. Given under my hand this _____ day of _____ 20 _____
6. Notary Seal
7. _____
(Notary Public)
8. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Principal if Corporation

9. STATE OF _____
10. County of _____ to-wit:
11. I, _____, a Notary Public in and for the
12. county and state aforesaid, do hereby certify that _____
13. who as, _____ signed the foregoing writing for
14. _____ a corporation, has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
15. Given under my hand this _____ day of _____ 20 _____
16. Notary Seal
17. _____
(Notary Public)
18. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Surety

19. STATE OF _____
20. County of _____ to-wit:
21. I, _____, a Notary Public in and for the
22. county and state aforesaid, do hereby certify that _____
23. who as, _____ signed the foregoing writing for
24. _____ a corporation,
has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
25. Given under my hand this _____ day of _____ 20 _____
26. Notary Seal
27. _____
(Notary Public)
28. My commission expires on the _____ day of _____ 20 _____

Sufficiency in Form and Manner of Execution Approved

This _____ day of _____ 20 _____.

By: _____
(Deputy Attorney General)

Attorney General

ACKNOWLEDGMENT PREPARATION INSTRUCTIONS

1. IF PRINCIPAL IS AN INDIVIDUAL OR PARTNERSHIP, HAVE NOTARY COMPLETE LINES (1) THROUGH (8).
2. IF PRINCIPAL IS A CORPORATION, HAVE NOTARY COMPLETE LINES (9) THROUGH (18).
3. SURETY MUST HAVE NOTARY COMPLETE LINES (19) THROUGH (28).
4. **Notaries must:**

ACKNOWLEDGMENT BY PRINCIPAL, IF INDIVIDUAL OR PARTNERSHIP

1. Enter name of State.
2. Enter name of County.
3. Enter name of Notary Public witnessing transactions.
4. Enter name of principal covered by bond if individual or partnership. (Must be Owner or General Partner of Sole Proprietorship or Partnership)
5. Notary enters date bond was witnessed. Must be the same as or later than signature date.
6. Affix Notary Seal.
7. Notary affixes his/her signature.
8. Notary enters commission expiration date.

ACKNOWLEDGMENT BY PRINCIPAL IF CORPORATION

9. Enter name of State.
10. Enter name of County.
11. Enter name of Notary Public witnessing transactions.
12. Enter name of Corporate Officer signing bond.
13. Enter Title of Corporate Officer signing bond. (Must be President or Vice President of Corporation; Manager or Managing Member of Limited Liability Company)
14. Enter name of Company or Corporation.
15. Notary enters date bond was witnessed. Must be the same as or later than signature date.
16. Affix notary Seal.
17. Notary affixes his/her signature.
18. Notary enters commission expiration date.

ACKNOWLEDGMENT BY SURETY

19. Enter name of State.
20. Enter name of County.
21. Enter name of Notary Public witnessing transactions.
22. Enter name of person having power of attorney to bind Surety Company.
23. Enter Title of person binding Surety Company.
24. Enter name of Insurance Company (Surety).
25. Notary enters date bond was witnessed. Must be the same as or later than signature date.
26. Affix Notary Seal.
27. Notary affixes his/her signature.
28. Notary enters commission expiration date.

POWER OF ATTORNEY INSTRUCTIONS

Power of attorney for surety must be attached showing that it was in full force and effect on signature date indicated on the face of the bond. A corporate seal must also be affixed to the Power of Attorney form.

- a. Name of attorney in fact must be listed.
- b. Power of Attorney may not exceed imposed limitations.
- c. Certificate date, the signature date of bond must be entered.
- d. Signature of authorizing official must be affixed. (Signature may be facsimile).
- e. **Seal must be affixed.**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. Intent of Certain Terms or Adjectives:

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. Day:

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective:

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. Furnish, Install, Perform, Provide:

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor’s full responsibility therefor.

2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor’s Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall

accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 Reference Standards

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners,

employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies:

- 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
- 2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
- 3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies:

- 1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to

Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and

within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. abnormal weather conditions;
 - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent

improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas:

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations

of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
 - 1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 - 2. is of such a nature as to require a change in the Drawings or Specifications; or
 - 3. differs materially from that shown or indicated in the Contract Documents; or
 - 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.
- B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments*:
 - 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase

or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

- a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
- b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
- c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
- d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. Possible Price and Times Adjustments:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
- 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
- 2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

- 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
 - D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
 - E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
 - F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
 - G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
 - H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion

of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or

other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract.

Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 Contractor's Insurance

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
4. Foreign voluntary worker compensation (if applicable).

- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
2. claims for damages insured by reasonably available personal injury liability coverage.
3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
3. Broad form property damage coverage.
4. Severability of interest.
5. Underground, explosion, and collapse coverage.
6. Personal injury coverage.
7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—

Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.

- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor’s pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor’s operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor’s commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor’s professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor’s performance of the Work and Contractor’s other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner’s Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner’s option, may purchase and maintain at Owner’s expense Owner’s own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder’s Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder’s risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder’s risk policy, as insureds or named insureds. For purposes of the remainder of

this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as “insureds.”

2. be written on a builder’s risk “all risk” policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder’s risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
6. extend to cover damage or loss to insured property while in transit.
7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder’s risk insurance.
8. allow for the waiver of the insurer’s subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
10. not include a co-insurance clause.
11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
12. include performance/hot testing and start-up.
13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles:* The purchaser of any required builder’s risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder’s risk policy, or through Contractor) will provide notice of such occupancy or use to the builder’s risk insurer. The builder’s risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder’s risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder’s risk insurance.

E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder’s risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor’s expense.

F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder’s risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its

consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *“Or Equals”*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

- 3) it has a proven record of performance and availability of responsive service; and
- 4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
- 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor’s Expense:* Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.

C. *Engineer’s Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an “or-equal”, which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer’s Determination:* Neither approval nor denial of an “or-equal” request shall result in any change in Contract Price. The Engineer’s denial of an “or-equal” request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

- 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
- 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the

Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

- a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
- b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted

it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:

- 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
- 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work

which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 Taxes

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 Laws and Regulations

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 Record Documents

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record

documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part,

to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 Safety Representative

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 Hazard Communication Programs

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 Emergencies

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 Shop Drawings, Samples, and Other Submittals

- A. Shop Drawing and Sample Submittal Requirements:
 - 1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping,

handling, storage, assembly, and installation pertaining to the performance of the Work; and

- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
- 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. Shop Drawings:

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. Samples:

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

- 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

- D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- E. Resubmittal Procedures:
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
 2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.
- 7.17 *Contractor's General Warranty and Guarantee*
- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
 - B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
 - C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
 - D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment

are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided,

however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential

to Contractor's ability to complete the Work within the Contract Times.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of

Contractor's safety programs of which Owner has been informed.

- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance

and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. Change Orders:

- a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
- b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

- 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the

Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the

items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the

Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied,

thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

- G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be

included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or

indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered

Work shall be governed by the provisions of Paragraph 14.05.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 Uncovering Work

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request,

shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants

access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. Applications for Payments:
 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

- c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
1. there are other items entitling Owner to a set off against the amount recommended.
 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to

allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. Application for Payment:
1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all

maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice

to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 Waiver of Claims

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 Correction Period

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 Owner May Suspend Work

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.
- 16.03 Owner May Terminate For Convenience**
- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.
- 16.04 Contractor May Stop Work or Terminate**
- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

Add the following new paragraphs immediately after paragraph 1.01.A.48 of the General Conditions to read as follows:

49. *Instruction to Contractor* — Same as "Field Order."
50. *Geotechnical Baseline Report (GBR)* — The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.
51. *Geotechnical Data Report (GDR)* — The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.01 Delivery of Bonds and Evidence of Insurance

Delete Paragraphs 2.01 B. and C. in their entirety and insert the following in their place:

- B. Evidence of Contractor's Insurance: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies of insurance (including all endorsements, and identification of applicable self-insured retentions and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. Evidence of Owner's Insurance: After receipt from Contractor of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner under Article 6 (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

SC-2.02 Copies of Documents

Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner will furnish to Contractor printed copies of the Contract (including one fully executed counterpart of the Agreement) as specified in Section 01 30 00, article "Copies of Drawings and Project Manuals."

Owner will furnish to Contractor printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF) as specified in Section 01 30 00, article "Copies of Drawings and Project Manuals."

Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner will furnish to Contractor 1 copy of the conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01 Intent

Delete Paragraph 3.01C in its entirety.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 Subsurface and Physical Conditions

Add the following new paragraph(s) immediately after paragraph 5.03.B:

- C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:
 - 1. Report dated June 19, 2024, prepared by Braun Intertec entitled: Geotechnical Evaluation Report consisting of 113 pages. The Technical Data contained in such report upon whose accuracy Contractor may rely soil borings, test, and recommendations and those indicated in the definition of Technical Data in the General Conditions.
- D. No drawings other than those provided in report cited above.
- E. Contractor may examine copies of reports and drawings identified in SC 5.03.C and SC 5.03.D and are included with the Bidding Document.

SC-5.06 Hazardous Environmental Condition

Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.01 Performance, Payment and Other Bonds

Delete the last sentence of paragraph A. and insert the following in its place:

- A. . . . Contractor shall furnish a maintenance bond in an amount at least equal to the Contract Price, as security to remedy defects in the Work performed or materials used by Contractor in performance of obligations under the Contract. This bond shall remain in effect until four years after the date when final payment becomes due.

SC-6.02 Insurance—General Provisions

Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

SC-6.03 Contractor’s Insurance

In paragraph 6.03.I.3., delete the words “materially changed”

Add the following new paragraph immediately after paragraph 6.03.J:

- K. The limits of liability for the insurance required by paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
 1. Workers' Compensation, and related coverages under paragraphs 6.03.A.1 and A.2 of the General Conditions:

a.	State:	Statutory
b.	Federal, if applicable (e.g., Longshoreman's):	Statutory
c.	Jones Act coverage, if applicable:	
	Bodily injury by accident, each accident	\$ <u>Not required</u>
	Bodily injury by disease, aggregate	\$ <u>Not required</u>
c.	Employer's Liability:	
	Bodily injury, each accident	\$ <u>1,000,000</u>
	Bodily injury by disease, each employee	\$ <u>1,000,000</u>
	Bodily injury/disease, aggregate	\$ <u>1,000,000</u>
d.	For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker’s compensation or commercial general liability policy with a minimum limit of:	\$ <u>Not required</u>
e.	Foreign voluntary worker compensation	\$ <u>Not required</u>
f.	Workers' Compensation and Employer's Liability insurance shall include the proprietor/partners/executive officers.	
 2. Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

a.	General Aggregate	\$ <u>2,000,000</u>
b.	Products--Completed Operations Aggregate	\$ <u>2,000,000</u>
c.	Personal and Advertising Injury	\$ <u>1,000,000</u>
d.	Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>

- 3. Business Automobile Liability under paragraph 6.03.D of the General Conditions:
 - a. Combined Single Limit of \$ 1,000,000
- 4. Excess or Umbrella Liability:
 - a. General Aggregate \$ 2,000,000
 - b. Each Occurrence \$ 2,000,000
- 5. Contractor's Pollution Liability:
 - a. General Aggregate \$ Not required
 - b. Each Occurrence \$ Not required
 - c. If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract
- 6. Additional Insureds: Stanley Consultants, Inc. and Johnson County Conservation shall be specifically named on policy as additional insureds by endorsement, including completed operations.
- 7. Contractor's Professional Liability:
 - a. Each Claim \$ Not required
 - b. Annual Aggregate \$ Not required

SC-6.05 *Property Insurance*

In paragraph 6.05.A.2., change the words "all risk policy" to read "special perils policy."

Add the following to the list of requirements in Paragraph 6.05.A, as a numbered item:

- 13. be subject to a deductible amount of no more than \$ 5,000 for direct physical loss in any one occurrence.

Add the following new subparagraph after subparagraph 6.05.A.1:

- a. In addition to Owner, Contractor, and all Subcontractors, include as insureds the following: Johnson County Conservation and Stanley Consultants, Inc.

Delete Paragraph 6.05.A in its entirety and insert the following in its place:

- A. Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance shall be a broad form or "all risk" policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor's installation floater will include:
 - 1. any loss to property while in transit,
 - 2. any loss at the Site, and
 - 3. any loss while in storage, both on-site and off-site.

Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor shall be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer,

all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:

- A. Owner will purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). . . .

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 *Labor; Working Hours*

Delete Paragraph 7.02 B. in its entirety, and insert the following in its place:

- B. In the absence of any Laws or Regulations to the contrary, Work hours are Monday through Saturday 7:00 a.m. to 7:00 p.m. No Sundays or federally recognized holidays. Saturday work is not mandatory.

Add the following new paragraph immediately after Paragraph 7.02.B:

- C. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Sunday or any legal holiday. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

Add the following new subparagraph immediately after Paragraph 7.02.C:

- 1. For purposes of administering the foregoing requirement, additional overtime costs are defined as Sundays and federally recognized holidays.

SC-7.04.C *"Or-Equals"*

Amend the third sentence of paragraph 7.04.C of the General Conditions to read as follows:

"No "or-equal" item will be ordered, furnish, installed or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by a Change Order or other written communication. Engineer will advise Contractor in writing of any negative determination"

SC-7.09 *Taxes*

Add a new paragraph immediately after Paragraph 7.09.A:

- B. Owner is exempt from payment of sales and compensating use taxes of the State of Iowa and of cities and counties thereof on all materials to be incorporated into the Work.
 - 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 - 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.
- B. Contractor and Subcontractors for this Project may obtain sales tax exemption certificate and an authorization letter from Owner. Certificate and letter can be presented to material suppliers which will allow the Contractor and Subcontractors to purchase building materials used in this contract exempt from Iowa sales tax and any applicable local option sales tax and school infrastructure local option tax. Complete information on qualifying materials and supplies can be found at www.state.ia.us/tax, the Iowa Department of Revenue and

Finance (IDRF) web site. Links can be found in the Business Taxes and Local Government categories.

SC-7.12 Safety and Protection

Add a new paragraph immediately after paragraph 7.12.G:

- H. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connections with the Work. The Owner and Engineer will not have such responsibility. No action under taken by the Owner or Engineer under General Conditions paragraphs 16.01 or 16.02, or article 10 will constitute a transfer of this responsibility or acceptance of this responsibility by the Owner or Engineer.

SC-7.16 Shop Drawings, Samples, and Other Submittals

Amend paragraph 7.16 by deleting the following words:

"and approval" and "and approve"

Delete paragraph 7.16.A.3. in its entirety and insert the following in its place:

- 3. If Contractor wishes to propose a variation from the requirements of the Contract Documents and a drawing or sample will be used to help describe the variation, the drawing or Sample shall not be submitted as a Shop Drawing or Sample, but rather will have specific notations regarding the variation and shall be transmitted to the Engineer with a letter describing all aspects of the variation, including any effect the variation will have on work of separate contractors, if any, and its effect, if any, on the Contract Price or Contract Time. If Engineer determines that the variation will be acceptable, the variation will be authorized by a Change Order executed by the Owner and Contractor.

Delete paragraph 7.16.D.3. in its entirety and insert the following in its place:

- 3. Engineer's review of Shop Drawings or Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents; nor will any review by Engineer relieve Contractor from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the requirements of paragraph 7.16.A.3.

Add the following new paragraphs immediately after Paragraph 7.16.E:

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required review of an item with no more than 3 submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring review and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

Delete Paragraph 8.02.A in its entirety and replace with the following:

- A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
 - 1. Contractor shall have authority and responsibility for coordination of the various contractors and work forces at the Site;

2. The following specific matters are to be covered by such authority and responsibility: all potential conflicts of time, equipment, and labor at the site;
3. The extent of such authority and responsibilities is: limited to the extent that any action is in or not in the best interest of the Owner as defined by the Owner.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

SC-9.13 *Owner’s Site Representative*

Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 *Owner’s Site Representative*

- A. Owner will furnish an “Owner’s Site Representative” to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. Owner’s Site Representative is not Engineer’s consultant, agent, or employee. Owner’s Site Representative will be Stanley Consultants, Inc. The authority and responsibilities of Owner’s Site Representative are as follows: indicated in GC-10.03 and SC-10.03.

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 *Project Representative*

Add the following new paragraphs immediately after Paragraph 10.03.A:

- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 4. Liaison:
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
 5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
 6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.

- b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
 7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
 8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
 9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
 10. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
 11. Reports:
 - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

- b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
 - 12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
 - 13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
 - 14. Completion:
 - a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
 - b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall not:
 - 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 - 8. Authorize Owner to occupy the Project in whole or in part.
- B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 *Cost of the Work*

Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

- c. Construction Equipment and Machinery:
 - 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in a schedule provided during the preconstruction conference. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-13.03 *Unit Price Work*

Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
 - 1. if the extended price of a particular item of Unit Price Work amounts to 5% percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20% percent from the estimated quantity of such item indicated in the Agreement; and
 - 2. if there is no corresponding adjustment with respect to any other item of Work; and
 - 3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01.D *Payment Becomes Due*

Delete subparagraph 15.01.D.1 in its entirety and insert the following in its place:

- 1. Thirty-one days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to, liquidated damages, will become due and, will be paid by Owner to Contractor.

SC-15.03 *Substantial Completion*

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

Add the following new paragraph immediately after Paragraph 17.01.

SC-17.02 *Arbitration*

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of American Arbitration Association subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

SC-17.03 *Attorneys' Fees*

Add the following new paragraph immediately after Paragraph 17.02.

SC-17.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

END OF DOCUMENT

Geotechnical Evaluation Report

Clear Creek Trail Half Moon Avenue to F.W. Kent Park

Johnson County, Iowa

June 19, 2024

Geotechnical Evaluation Report

Clear Creek Trail Half Moon Avenue to F.W. Kent Park
Johnson County, Iowa

Prepared for

Stanley Consultants, Inc.

Professional Certification:

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa. My license renewal date is December 31, 2025.

Adam Tyler, PE
Project Engineer
License Number: P26052
June 19, 2024



Project B2102331

Braun Intertec Corporation

June 19, 2024

Project B2102331

Daniel Fullerton, PE
Stanley Consultants, Inc.
100 Court Avenue, Suite 300
Des Moines, IA 50309

Re: Geotechnical Evaluation Report
Iowa DOT Project Number: TAP-U-C052--8I-52
Clear Creek Trail, Half Moon Avenue to F.W. Kent Park
Johnson County, Iowa

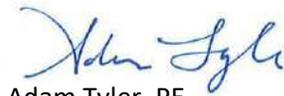
Dear Mr. Fullerton:

We are pleased to present this Geotechnical Evaluation Report for the proposed extension of Clear Creek Trail near Half Moon Avenue to F.W. Kent Park in Johnson County, Iowa.

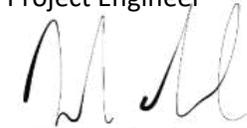
Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Adam Tyler at 515.509.3032 (at Tyler@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



Adam Tyler, PE
Project Engineer



Jeffrey A. Gebhard
Vice President



Morgan D. Race, PhD, PE
Senior Engineer

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Appendix A:

Soil Boring Location Sketch
Log of Boring Sheets
Descriptive Terminology of Soil
Descriptive Terminology of Rock
Laboratory Test Data Sheets

Appendix B:

Driven Pile Resistance Tables

Appendix C:

Global Slope Stability Graphic Outputs

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the geotechnical recommendations for the development of the extension of the 10-foot wide, recreational, Clear Creek Trail from its existing termination point near Half Moon Avenue to F.W. Kent Park in Johnson County, Iowa. Table 1 summarizes our project understanding based on the provided Situation Plan and our communication with the project team.

Table 1. Bridge and Retaining Wall Descriptions¹

Structure	Description
Pedestrian Bridges	<ul style="list-style-type: none"> ▪ Three Single-Span Prefabricated Trail Bridges. <ul style="list-style-type: none"> ▪ West Bridge <ul style="list-style-type: none"> ▪ Stations 55+98.86 to 56+58.86 ▪ 60-foot long and 12-foot wide pre-engineered pedestrian bridge ▪ Bottom of Footing: 711.67 feet ▪ Middle Bridge <ul style="list-style-type: none"> ▪ Stations 65+92.44 to 66+42.44 ▪ 50-foot long and 12-foot wide pre-engineered pedestrian bridge ▪ Bottom of Footing: 708.31 to 708.56 feet ▪ East Bridge <ul style="list-style-type: none"> ▪ Stations 98+74.45 to 99+99.45 ▪ 125-foot long and 12-foot wide pre-engineered pedestrian bridge ▪ Bottom of Footing: 708.75 to 708.87 feet ▪ Foundations: Driven HP10X57 Piles
Retaining Walls	<ul style="list-style-type: none"> ▪ Stations 32+60 to 35+70.4 <ul style="list-style-type: none"> ▪ Modular Block Retaining Wall on both sides of trail ▪ Maximum height: 11 1/2 foot for left wall and 9 1/4 foot for right wall ▪ Station 115+15 to 118+35 <ul style="list-style-type: none"> ▪ Modular Block Retaining wall on south side of trail ▪ Maximum height of 5 feet. ▪ Station 129+00 to Station 129+50, <ul style="list-style-type: none"> ▪ Modular Block Retaining Wall ▪ Maximum height of approximately 4 feet. ▪ Station 134+50 to 141+50 <ul style="list-style-type: none"> ▪ Modular Block Retaining wall ▪ Maximum height of approximately 7 1/2 feet. ▪ Station 151+00 to Station 151+50, <ul style="list-style-type: none"> ▪ Modular Block Retaining wall ▪ Maximum height of approximately 10 feet.
Pedestrian Tunnel	<ul style="list-style-type: none"> ▪ Single 14-foot wide; 9-foot tall, and 196-foot and 5-inch-long Cast-In-Place Reinforced Concrete Pedestrian Tunnel (Stations 35+70.03 to 37+66.8).

A.2. Purpose

The purpose of our geotechnical evaluation is to characterize the subsurface geologic conditions at selected boring locations. Then, based on this information, provide a discussion and recommendations pertaining to the geotechnical aspects of the design and construction of the proposed trail structures.

A.3. Background Information and Reference Documents

We reviewed the following information:

- Email communication from Stanley Consultants, Inc. (Stanley) providing the requested scope of services, dated April 28, 2020.
- Final Clear Creek Trail RFP from Stanley to Johnson County Conservation Board dated March 5, 2020.
- Email communication from Stanley providing update to requested scope of services, dated March 22, 2022.
- Publicly available sources, including Google Earth™, Web Soil Survey, GeoSea by Iowa Geologic Survey and Iowa Geologic Maps.
- Situation Plans, Pedestrian Tunnel, Retaining Walls, and Bridges, Clear Creek Trail, Project Number TAP-U-C052(124)--81-52.
- Cross Sections, Project Number TAP-U-C052(124)--81-52, dated February 28, 2023, provided by Stanley.
- Plan and Profile, Project Number TAP-U-C052(124)--81-52, dated February 28, 2023, provided by Stanley.

We have attempted to describe our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

A.4. Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB175175 to Stanley, dated March 28, 2023, and authorized under an Agreement for Subconsultant Services on January 31, 2023. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewed the background information and reference documents previously cited.
- Cleared the exploration locations of underground utilities. The Soil Boring Location Sketch included in Appendix A shows the approximate locations of the borings.
- Performed 31 standard penetration test (SPT) borings, denoted as SB-1 to SB-31, to nominal depths ranging from approximately 25 to 98 feet below existing grade.
- Performed visual classification and performed laboratory testing on selected samples to aid in soil classification and engineering analysis.
- Prepared this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for design and construction for the proposed retaining walls, proposed pedestrian tunnel, and pedestrian bridge foundations.

B. Results

B.1. Geologic Overview

We based the geologic origins used in this report on the soil types, and available common knowledge of the geological history of the site.

Based on the Bedrock Geologic Map of Iowa from the Iowa Department of Natural Resources, we expect that the site is located within a mapped region of the Upper Devonian period of the Famennian, Lime Creek and Sweetland Creek Formations. The soils within the project area of these formations are generally underlain by various limestone, shale and siltstone bedrocks. These formations also include interbedded deposits of weathered dolomite and chert.

B.2. Boring Results

Table 2 provides a summary of the soil boring results; in the general order we encountered the strata. Please refer to the Log of Boring sheets in Appendix A for additional details. The Descriptive Terminology sheet in Appendix A includes definitions of abbreviations used in Table 2.

Table 2. Subsurface Profile Summary

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil	---	---	<ul style="list-style-type: none"> ▪ Encountered at borings SB-01 to SB-17. ▪ Thicknesses at boring locations varied from 1/2 to 1 foot.
Pavement	---	---	<ul style="list-style-type: none"> ▪ Encountered at borings SB-18 to SB-31. ▪ Asphalt thicknesses at boring locations varied from 4 to 6 inches. ▪ Aggregate base thicknesses varied at boring locations from 1/2 to 1 1/2 foot.
Fill	CL, SC	7 to 20 BPF	<ul style="list-style-type: none"> ▪ Encountered at borings SB-21 to SB-31 at the ground surface extending to depths of 1/2 to 5 1/2 feet below the existing ground surface. ▪ Contained varying amounts of debris, sand, and gravel. ▪ Generally moist and dark Brown to brown.
Eolian	SP, SP-SC	9 to 17 BPF	<ul style="list-style-type: none"> ▪ Encountered in borings SB-18 to SB-22 ▪ Moisture condition generally moist to wet. ▪ Thicknesses at boring locations varied from 5 to 12 1/2 feet. ▪ In general brown and loose to medium dense.
Loess	CL, ML	0 to 16 BPF	<ul style="list-style-type: none"> ▪ Encountered in borings SB-01 to SB-07, SB-09, SB-14 to SB-17, SB-24, SB-26, SB-28, and SB-31. ▪ Moisture condition generally moist to wet. ▪ Thicknesses at boring locations varied from 1.5 to 30 feet. ▪ Generally gray and brown and medium.
Alluvium	CL, CL-ML, ML, SP-SM, SC	0 to 36 BPF	<ul style="list-style-type: none"> ▪ Encountered in borings B-8 to B-13, SB-20 to SB-23, and SB-29 to SB-31. ▪ Moisture condition generally moist to wet. ▪ Thicknesses at boring locations varied from 2 to 58 feet. ▪ In general, dark brown to brown to gray with depth. ▪ Consistency for cohesive soils ranged from soft to very stiff. ▪ Relative densities for granular soils ranged from loose to medium dense.

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Glacial	CL, CL- ML	8 to 38 BPF	<ul style="list-style-type: none"> ▪ Encountered in borings SB-1 to SB-7, SB-12 to S-B16, and SB-21 to SB-27 ▪ Generally moist and gray and brown. ▪ Consistency ranged from medium to hard.
	SP, SW, SC, SW-SC	9 to 71	<ul style="list-style-type: none"> ▪ Encountered in borings SB-8 to SB-13 ▪ Moisture condition generally moist to wet. ▪ In general gray to dark gray. ▪ Relative density ranged from medium dense to very dense.
Apparent bedrock	Shale	50/4" to 50/1"	<ul style="list-style-type: none"> ▪ Encountered in borings SB-08 to SB-13. ▪ Top of bedrock varied from Elevation 635.4 (SB-13) to 623.9 (SB-12) feet. ▪ Generally moderately hard. ▪ No sample was recovered during drilling. Therefore, we based our classification on geologic research and nearby well logs. ▪ Rock coring was not performed to any of the borings. ▪ Please note that we are referencing geologic mapping that does not account for local variations and anomalies.

B.3. Groundwater

Table 3 summarizes the depths and elevations where we observed groundwater; the attached Log of Boring sheets in Appendix A also include this information and additional details. We advanced borings SB-8 through SB-13 using mud rotary drilling techniques below the depths indicated on the boring logs. During mud rotary drilling, the drillers add water/bentonite mix as a drilling fluid to maintain an open borehole, limiting our ability to observe natural water levels. Project planning should anticipate seasonal and annual fluctuation of groundwater.

Table 3: Water Levels and Elevations

Boring Number	Depth to water during drilling (ft)	Water level Elevation (ft)
SB-1	17	717
SB-2	17	717
SB-4	17	718
SB-5	34 1/2	711 1/2
SB-6	20	717

Boring Number	Depth to water during drilling (ft)	Water level Elevation (ft)
SB-7	25	702
SB-20	8	764
SB-21	9	756
SB-22	23 1/2	738 1/2
SB-29	20	696
SB-30	18 1/2	695 1/2
SB-31	13 1/2	699 1/2

B.4. Laboratory Test Results

The results of our laboratory tests are shown on the Boring Logs in Appendix A, adjacent to the samples that were tested. For the lab test results not included on the logs, we include test reports in Appendix A.

C. Recommendations

C.1. General

Based on our findings, Clear Creek trail can be constructed using conventional methods. However, we have summarized the potential geotechnical design and construction concerns in the following sections.

C.1.a. Existing Fill Material

We encountered existing fill at borings SB-21 to SB-31 to depths of approximately 1/2 feet to 7 feet. The existing fill primarily consisted of sandy lean clays or clayey sands with varying amounts of gravel. The existing fill encountered in our borings appear suitable for reuse as engineered fill if they are free of organics. The clayey soils will likely require moisture conditioning prior to reuse to achieve needed compaction. Any materials to be reused as engineered fill should be evaluated and approved by the engineer or the on-site engineer representative prior to reuse.

C.1.b. Trail Embankment

The planned embankment area does not appear to require subsurface stabilization to facilitate construction; however, the near surface soils present consist of soft- to medium- clays and, if wet, are

considered marginal for construction and embankment support. Some removal of soft materials or subgrade stabilization may be required to develop suitable working surfaces and subgrades for placement of embankment fill.

C.1.c. Retaining Wall

Sta. 34+50 to 35+70.4: Based on our global stability analyses of the retaining wall, we recommend that ground improvement comprised of undercutting and replacing to a minimum depth of 5 feet below the wall foundation or rammed aggregate piers or stone columns be installed below the wall to meet a minimum design factor of safety of 1.4 to 1.5. General retaining wall geotechnical design considerations are presented in Section C.4. Actual ground improvement methods and layout should be designed by the specialty contractor to meet the required performance criteria and approved by the geotechnical engineer of record.

C.1.d. Limitations

The recommendations submitted herein are based, in part, upon data obtained from our subsurface exploration. The nature and extent of subsurface variations that may exist at the proposed project site will not become evident until construction. If variations appear evident, then the recommendations presented in this report should be evaluated in light of them. In the event that any changes in the nature, design, location or elevations of the proposed tracks are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and our recommendations are modified in writing.

It is important to note that the following recommendations are limited to the area evaluated as described herein. Information and recommendations presented in this report should not be extrapolated to other areas or sites.

C.2. Site Grading and Subgrade Preparation

C.2.a. Site Stripping and Grubbing

We recommend stripping vegetation, topsoil, and surface or buried debris from construction areas. Stripping operations should be observed by a geotechnical engineer or technician working under the direction of a geotechnical engineer to confirm unsuitable materials have been removed prior to filling or placement of pavement section materials. We recommend the stripped materials be wasted outside embankment and pavement subgrade limits or placed as topsoil fill on finished embankment slopes if compliant with embankment topsoil specifications.

Care should be taken to remove stumps associated with larger shrubs and trees in the area. Materials disturbed during stump removal should be restored with structural fill.

C.2.b. Subgrade Preparation

We recommend removing any soft, loose, or otherwise unsuitable materials from below the proposed retaining walls and oversize areas. We recommend having a geotechnical engineer, or an engineering technician working under the direction of a geotechnical engineer (geotechnical representative), evaluate the suitability of exposed subgrade soils to support the proposed structure.

C.2.c. Undercutting and Subgrade Stabilization

Based on the results of our evaluation, we anticipate that the existing on-site materials, if moisture conditioned and compacted to the requirements of structural fill within 6 inches of planned subgrade, should be suitable for support of the anticipated embankment and pavement along the majority of the alignment.

Should soft, weak, or otherwise unstable soils be encountered during subgrade preparation, we recommend removing and recompacting or replacing such soils with structural fill or aggregate (“shot rock”) as appropriate/available. New fill placed in this area will need to be “benched” into the existing embankment, as described in Section C.2.d. We recommend having a geotechnical engineer or technician, working under the direction of a geotechnical engineer, assist in determining the limits and adequacy of corrective excavations and evaluating backfill options. Additional drainage measures could also be considered to improve stability of these areas.

C.2.d. Benching

Depending on fill requirements, the contractor can construct benches by cutting into existing grades while placing fill (the composition of the exposed soils thus being in compliance with fill specifications), or by cutting the benches in advance of filling (to prevent mixing with soils not in compliance with fill specifications). The height of a given bench may vary but the width should consistently be great enough to accommodate compaction equipment.

We recommend a walk-behind compactor be used to compact the fill placed within about 5 feet of retaining walls. Further away than that, a self-propelled compactor can be used.

C.2.e. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of alluvial and loess lean clay and clayey sand materials. These soils are typically considered Type B or C Soil under OSHA (Occupational

Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type B and C soils should have a gradient no steeper than 1H:1V and 1 1/2H:1V, respectively. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth. We understand that the excavation is planned to be sloped at 1 H:1V; however, if the soil is classified type C, temporary shoring would be required to support excavation.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.2.f. Excavation Dewatering

Based on our field exploration work, we anticipate groundwater may be within proposed excavation depths. Groundwater in clayey soils can generally be removed by pumping from filtered sump pits. However, dewatering in sandy zones with higher permeability soils may be more difficult. If pumping from sump pits is not successful in these areas, a dewatering plan consisting of well points may be necessary.

C.2.g. Moisture Control

We recommend requiring the contractor to compact embankment soils in accordance with Iowa DOT Specification 2107.03.I Moisture Control. The contractor should maintain the moisture content within the limits of minus 2 percent to plus 2 percent of the Optimum Moisture Content, as determined by AASHTO T-99 (Standard Proctor).

C.2.h. Embankment Settlement

Based on the provided Plans, we understand the bridges will require 3 to 10 feet of fill at the abutments.

Embankment Soils: We anticipate that the new fill will settle approximately 1 percent of its height. For example, 8 feet of new fill will settle about 1 inch under its own weight. Based on our review of literature and the encountered subsurface conditions, we anticipate that 50 percent of the estimated fill settlement will occur during construction and the remaining 50 percent will be time-dependent settlement that occurs after completion of embankment placement.

Foundation Soils: We estimated settlement using consolidation theory and elastic method with design parameters developed from field and laboratory test results as well as guidelines presented in Section

200E-1 of the Iowa DOT Design Manual. We anticipate a portion of the settlement will occur during construction, but some settlement will continue after construction completion.

Table 4 summarizes the total estimated settlement at each bridge abutment. The table also includes our recommended post-construction delay to achieve less than 1-inch of the total settlement. Based on our understanding of the project schedule, we anticipate the estimated construction delay will be acceptable to the design team.

Table 4. Estimated settlement.

Substructure	Proposed Fill Height (feet)	Estimated Settlement (inches)			Recommended Construction Delay (days)
		Embankment Soil	Foundation Soil	Total	
West Bridge					
West Abutment Station 55+98.86	3	Less than 1/2	1	1 1/2	30
East Abutment Station 56+58.86	5	Less than 1/2	1 1/2 to 2	2 to 2 1/2	30
Middle Bridge					
West Abutment Station 65+92.44	7	1/2 to 1	1 to 1 1/2	2 to 2 1/2	30
East Abutment Station 66+42.44	5	Less than 1/2	1 to 1 1/2	1 1/2 to 2	30
East Bridge					
West Abutment Station 98+74.45	10	1/2 to 1	2 1/2 to 3	3 to 4	30 to 45
East Abutment Station 99+99.45	5	Less than 1/2	1 1/2 to 2	2 1/2	Less than 30

C.3. Pedestrian Bridges

C.3.a. Driven Piles Foundation

We evaluated driven pile foundations in general accordance with the procedures outlined in Section 6.2 of the Iowa Department of Transportation (IDOT) Load and Resistance Factored Design (LRFD) Bridge Design Manual (BDM). Because we encountered soils having SPT resistances greater than 50 blows per foot (bpf) in the bridge borings, we recommend the H-Piles be driven with pile tip protection.

C.3.b. Nominal Pile Resistance

The Pile Resistance Table attached to this report in Appendix B contains our recommendations for the nominal, unit resistances of soil layers encountered below the bottom-of-pile-cap (BOPC) for H-pile design. The BOPC elevations at the abutments were taken from the Situation Plan provided to us by Stanley. We estimated the unit resistances using Tables 6.2.7-1 and 6.2.7-2 in the BDM. No information with regards to scour was provided at the time of this report; thus, the final pile design should account for any potential scour and pile unsupported length if necessary.

Table 5 summarizes the BOPC elevations and anticipated pile lengths based on our experience with driven piles.

Table 5. Pile Cap and Tip Elevations

Substructure Location	Approximate BOPC Elevation (feet)	Anticipated Pile Lengths from BOPC (feet)
West Bridge		
West Abutment (SB-08)	712	85 ± 5
East Abutment (SB-09)	712	91 ± 5
Middle Bridge		
West Abutment (SB-10)	709	84 ± 5
East Abutment (SB-11)	708	83 ± 5
East Bridge		
West Abutment (SB-12)	709	80 ± 5
East Abutment (SB-13)	709	78 ± 5

We recommend determining final pile tip elevations during construction using wave equation and dynamic pile driving (PDA) test results, as specified in Iowa DOT Standard Specification 2501.

We recommend the bottom elevation of the pile cap at the abutment locations be at least 42 inches below the lowest exterior grade, for frost protection.

We recommend using SRL-1 for pile design, which allows a total stress of 6 ksi.

We recommend having Braun Intertec review the pile resistances, lengths, and associated bridge plans prior to finalization of construction documents to confirm they are consistent with our recommendations.

We recommend a drivability analysis at each substructure based on the subsurface profile and driving hammer. Based on our borings we encountered glacial soils with gravel and cobbles; therefore, we recommend pile driving be ceased immediately, once capacity has been achieved. Overdriving of the piles could overstress the piles and cause pile damage. Additionally, we recommend the contractor review the boring logs to assess the potential problems with completing the pile driving in the subsurface materials encountered at this site.

C.3.c. Resistance Factors

The soil category for the abutment foundations is listed below in Table 6 per BDM Section 6.2.8.

Table 6. Soil Categories for Driven Piles

Substructure Location	Soil Category
West Bridge	
West Abutment (SB-08)	Mixed
East Abutment (SB-09)	Mixed
Middle Bridge	
West Abutment (SB-10)	Mixed
East Abutment (SB-11)	Mixed
East Bridge	
West Abutment (SB-12)	Cohesive
East Abutment (SB-13)	Mixed

Table 7 summarizes the resistance factors for pile skin friction in compression and tension at the Strength Limit as given in Tables 6.2.9-1 and 6.2.9-2 of the BDM. These resistance factors are for redundant pile groups, which the Bureau defines as four piles minimum at abutments.

Table 7. Resistance Factors for Driven Piles in Compression and Tension

Construction Control	Axial Compression		Axial Tension	
	Mixed	Cohesive	Mixed	Cohesive
IDOT ENR Formula Only	0.60	0.60	0.45	0.45
WEAP Only	0.65	0.65	0.50	0.50
WEAP + PDA/CAPWAP	0.70	0.70	0.55	0.55
WEAP + PDA/CAPWAP + 72-hour Restrike	0.70	0.80	0.55	0.60
WEAP + Static Pile Load Test	0.80	0.80	0.80	0.80

For end bearing on the bedrock, the Strength Limit resistance factor is 0.70.

For the Service Limit cases in compression and tension, the resistance factor is 1.0.

For the Extreme Limit case in compression, the resistance factor is 1.0. For the Extreme Limit case in tension, the resistance factor is 0.75.

C.3.d. Down Drag

According to the Soils Design Manual, Iowa DOT considers down drag to be mobilized if there is 0.4 inches or more of expected relative displacement between the soil and pile after the piles have been driven. Based on our anticipated settlement estimate, we expect down drag forces to develop for all abutment piles.

We estimated the drag loads at the abutments based on the elevations and unit side resistances table in Appendix B. Based on the provided plans, we estimated the drag loads assuming piles will be driven without predrill. We summarized the anticipated, nominal, drag loads at the abutments in Table 8.

Table 8. Anticipated Drag Load

Substructure Location	Estimated Nominal Down Drag Load, per pile (kips)			Estimated Time to Negligible Down Drag After Completion of Embankment Construction (days)
	10-inch H-Pile	12-inch H-Pile	14-inch H-Pile	
West Bridge				
West Abutment (SB-08)	5	7	7	15 to 30
East Abutment (SB-09)	10	15	15	45 to 60
Middle Bridge				
West Abutment (SB-10)	23	27	34	30 to 45
East Abutment (SB-11)	19	27	27	30 to 45
East Bridge				
West Abutment (SB-12)	31	40	48	30 to 45
East Abutment (SB-13)	7	10	10	15 to 30

C.3.e. Lateral Squeeze

Based on the preliminary cross-section for the proposed Clear Creek Trail bridges, it is our understanding that the maximum fill height (H_{fill}) is planned to be up to 10 feet from existing grade at the west abutment of the East Bridge. We estimate that the foundation soils have undrained shear strengths (S_u) of at least 450 pounds per square foot (psf). Pile lateral squeeze potential was evaluated using the following equation per FHWA Design and Construction of Driven Piles Manual (2006):

$$\gamma_{fill} (125 \text{ pcf}) \times H_{fill} < 3 \times S_u \text{ (Satisfied)}$$

The evaluation indicates that the conditions satisfy the above criteria for the foreslopes at both abutments at each bridge. Therefore, lateral squeeze is not expected for the piles at the bridges along the Clear Creek Trail expansion.

C.3.f. Deep Foundation Spacing and Group Effect

The design of deep foundations does not need to consider group effects for axial loading if the pile spacing is at least three-pile diameters center-to-center. For lateral loading, consideration of group effects is not necessary for a center-to-center pile spacing of at least seven diameters. If the project team selects a closer spacing, we recommend having us evaluate the magnitude of the group effect.

C.3.g. Deep Foundation Settlement

We anticipate total deformation at the top of deep foundation elements will be less than 1 inch for Structural Resistance Level 1 (SRL-1). Differential settlement will primarily be due to differences in elastic

shortening of the deep foundation elements based on differences in applied loads. We anticipate the variation in loads between deep foundation elements will result in differential pile-top movement of less than 1/2 inch.

C.4. Retaining Walls

Based on the provided plans, retaining walls are planned to be constructed as part of the Clear Creek trail project. A modular block retaining wall is proposed to be constructed adjacent to Highway 6 from Station 32+60 to Station 35+70.4 with wall heights ranging from about 1-foot up to 11 1/2 -foot. Similarly, another modular block wall is proposed adjacent to Highway 6 from Station 115+15 to 118+35 with wall height about 5-foot. We also understand that all other retaining walls will be constructed adjacent to Half Moon Avenue with maximum height on the order of 10-foot or less. We were not provided with detailed structural plans for other proposed retaining walls at the time of this submittal. Therefore, we assumed that these retaining walls will be modular block type. We recommend that we review when such plans are available in the future in order to confirm our assumptions.

C.4.a. Geotechnical Design Parameters

We selected the geotechnical design parameters for our evaluation based on available laboratory test results, local experience with similar soils, project details, and engineering judgment. We summarize our geotechnical design parameters in Table 9.

Table 9. Retaining Wall Geotechnical Design Parameters

Material	Wall Station	Soil Boring	Description	Total Unit Weight (pcf)	Effective Cohesion & Effective Friction Angle (degrees)
Foundation Soil	32+60 to 35+70.4	SB-01 to SB-05	Lean Clay (PI<15)	125	C'=50, ϕ' = 25
	115+15 to 118+35	SB-14 to SB-17	Lean Clay (PI<15)	125	C'=50, ϕ' = 25
	129+00 to 129+50	SB-18	Poorly Graded Sand	115	ϕ' = 30
	134+50 to 141+50	SB-20 to SB-27	Lean Clay (PI<25)	125	C'=50, ϕ' = 25
	151+00 to 151+50	SB-31	Poorly Graded Sand	115	ϕ' = 32
Retained Soil	---	---	Select Granular Fill, <5% fines	120	ϕ' = 34

C.4.b. Global Stability

We analyzed the global stability using the computer program Slide™, which is a component of the ROCSCIENCE™ suite of programs. No information with regards to the required minimum factors of safety for modular block walls is provided in Iowa DOT Design Manual. However, Section 200F-3 of the Iowa DOT Design Manual indicate the required minimum factors of safety for MSE wall to be 1.5 for designs where the slope contains a structural element. Therefore, we recommend using a minimum factor of safety of 1.5 for the modular block retaining walls as well.

We evaluated the modular block walls stability to estimate the lowest factor of safety for long-term conditions. We are attaching graphical representations of the critical section analyses along with design soil parameters used in the analyses. We developed the parameters based on laboratory test results and guidelines presented in Section 200E-1 of the Iowa DOT Design Manual. Table 10 summarizes the results of long-term stability analyses.

Table 10. Retaining Walls Global Stability

Wall Stationing	Global Factor of Safety		
	Undrained (Short Term)	Drained (Long Term)	Drained (Long-Term) w/ Remediation
35+50 South Wall	---	1.3	Aggregate Columns: 1.4 Undercut and Replace: 1.5
35+50 North Wall	---	1.6	---
116+50	---	1.5	--
138+50	---	1.7	
151+50	3.4	2.1	---

Based on our evaluation, the global stability for the proposed retaining walls does not meet the required minimum factor of safety for long-term conditions at Station 35+50 without remediated foundation materials. Therefore, based on our correspondence with the project team, we reevaluated the global stability for the proposed retaining walls for remediation techniques discussed in the sections below. The options are aggregate column and undercut 5-ft and replace with shotrock.

C.4.c. Sta 34+50 to 35+70.4 South Wall

We evaluated the long-term global stability between Sta. 34+50 and 35+70.4, along the south wall, using remediation techniques with aggregate columns below the foundation and undercut and replace with shotrock material.

Ground Improvement

To address stability, settlement and bearing capacity concerns, we recommend aggregate column ground improvement be constructed below the north side of the proposed modular block retaining wall from Station 34+50 to Station 35+70.4. Details of the ground improvement (GI) and the actual GI design will be provided by the specialty contractor. For our evaluations, we have assumed the below parameters for the ground improvement zone.

- Minimum Area Replacement Ratio = 0.22
- Effective Friction Angle of Aggregate Column = 45 degrees
- Unit Weight = 120 pcf
- Friction Angle and Cohesion of Improved Soil for Effective Conditions: $\phi' = 31$ degrees and $c' = 39$ psf
- Minimum Treatment Depth = 6 ft
- Minimum Settlement Ratio = 2

Undercut and Replacement

Alternatively, we evaluated remediation by undercutting and replacement of a minimum of 5 feet below the retaining wall foundation. We recommend the replacement extend a minimum of 5 feet in front of the face of the wall. We recommend the replacement material consist of granular “shot” rock material having a maximum size of 12 inches, less than 20% fines (i.e., passing #200) and free of organics (less than 3 percent) and debris.

C.5. Pedestrian Tunnel

Based on the provided plans, we understand that a 14-foot wide, 9-foot tall, and 196-foot and 5-inch-long cast-in-place reinforced concrete pedestrian tunnel will be constructed as part of Clear Creek trail project. The proposed pedestrian tunnel will traverse Highway 6 with a skew angle of approximately 45 degrees from Station 35+70 to 37+67.

C.5.a. Tunnel Subgrade

Based on the subsurface conditions encountered at our boring locations, we anticipate the tunnel will be supported on soft to medium cohesive loess materials. We anticipate the construction plans will include removal of soft soil prior to the tunnel construction. After the removal of soft and loose or otherwise unsuitable soils from tunnel subgrade, we recommend using a working blanket to aid tunnel constructability. The purpose of the working blanket is to allow placement of reinforcing steel and concrete to be up out of mud that may form during construction activities.

Based on our water observations while drilling Borings SB-5 to SB-7, we do not anticipate encountering groundwater during construction. However, if surface water seeps into excavations during construction, then pumping from sump pits can be a sufficient method for dewatering. Groundwater in clayey soils can generally be removed by pumping from filtered sump pits; however, in sandy zones dewatering may be more difficult because of the higher permeability. If pumping from sump pits is not successful in these areas, a dewatering plan consisting of well points may be necessary.

C.5.b. Working Blanket

We recommend constructing a working blanket at the tunnel location. The working blanket should consist of material meeting Section 4133 of the Iowa DOT Standard Specification. The working blanket should have a minimum thickness of one foot, and a width of 2 feet beyond the side walls of the proposed tunnel.

At the time of construction, we recommend that the geotechnical engineer or technician working under the direction of the geotechnical engineer review the need for the working blanket, as necessary.

C.5.c. Horizontal Earth Pressure

Because of the framing of the tunnel, the walls of the tunnel are not free to deflect and mobilize active earth pressure conditions. We also do not anticipate that the tunnel will rotate. Therefore, the structural design of the box culvert should utilize at-rest earth pressures. Table 11 presents the recommended earth pressure coefficients for the tunnel.

Table 11: Earth Pressure Coefficients-Permanent Below-Grade Walls – Tunnel

Soil Layer Type	Friction Angle (degree)	At Rest Earth Pressure Coefficients K_0	Soil Total Unit Weight (pounds per cubic foot)
Engineered Fill*	26	0.56	125
Alluvial/Loess Clay	25	0.6	120
Alluvial Sand	32	0.47	120

* Assumed soil will consist of moderately plastic clay.

C.5.d. Tunnel Settlement

Based on the provided plans, we understand that the proposed final grade for the proposed tunnel will be at or below the existing grade. Therefore, we anticipate that the total settlement will be on the order of 1 inch.

D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with an ATV-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. We collected thin-walled tube samples in general accordance with ASTM D1587 at selected depths. The boring logs show the actual sample intervals and corresponding depths.

D.2. Exploration Logs

D.2.a. Log of Boring Sheets

The Appendix includes the Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials and present the results of penetration resistances. The logs also present the results of laboratory tests performed on samples, and groundwater measurements.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

Boring locations were not surveyed by Stanley and the coordinates and elevations presented on the Boring Logs were extracted from GPS data from Google Earth.

D.2.b. Geologic Origins

We assigned geologic origins to the materials shown on the log and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.3. Material Classification and Testing

D.3.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system used.

D.3.b. Laboratory Testing

The exploration logs in the Appendix note the results of the laboratory tests performed on geologic material samples. We performed the tests in general accordance with ASTM procedures.

D.4. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test boring, and again after auger withdrawal. However, we did not observe water level in borings B-1 through B-3. We advanced Borings B-4 and B-5 using mud rotary drilling techniques below the depths indicated on the boring logs. During mud rotary drilling, the drillers add water/bentonite mix as a drilling fluid to maintain an open borehole, limiting our ability to observe natural water levels.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed this report from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation and thickness, away from the exploration locations. Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs and interpreted in the text of this report. Note that the observation period was relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

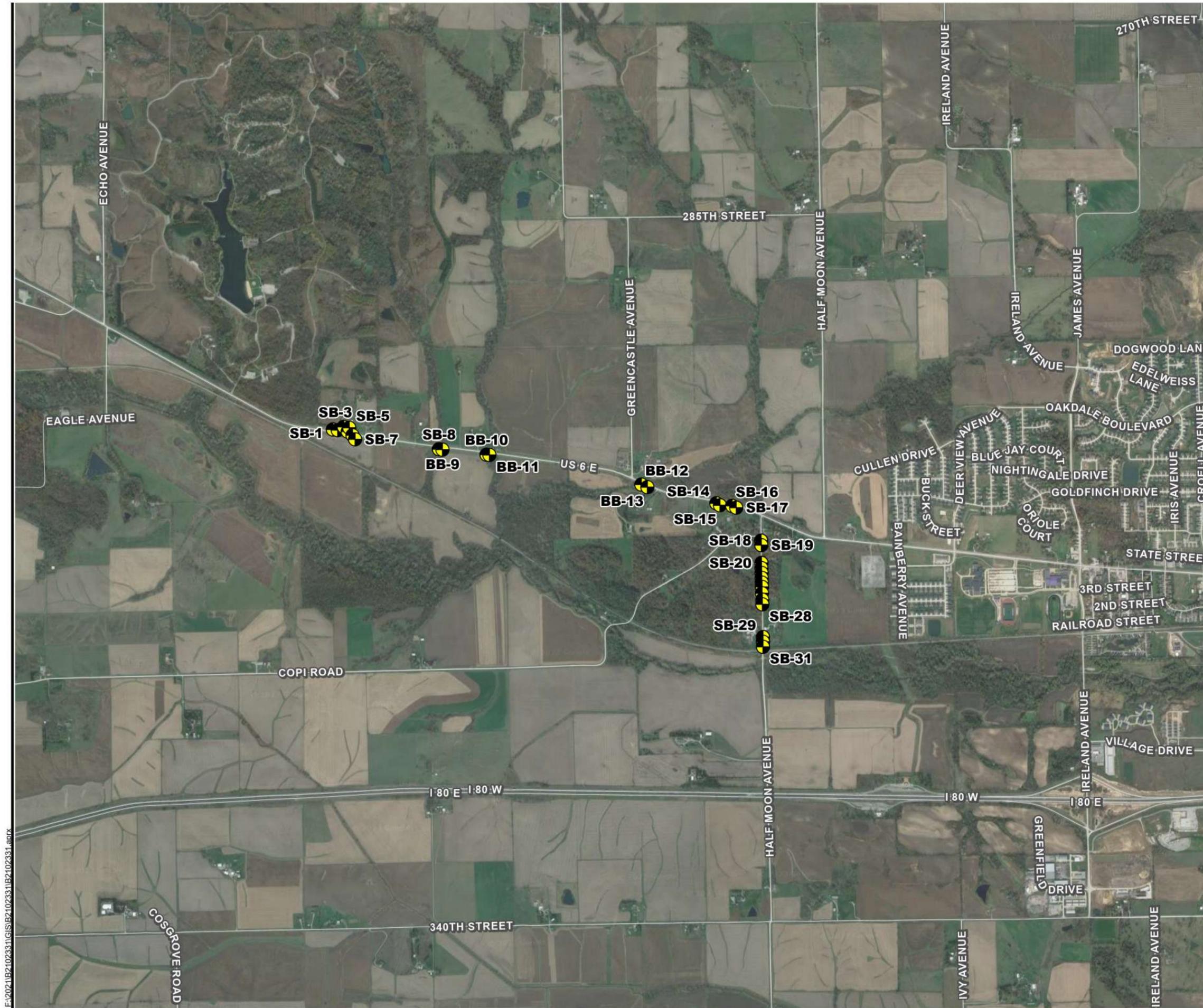
E.2. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.3. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix A



Soil Boring

**BRAUN
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Cedar Rapids, IA 50322
319.365.0961
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Drawing Information

Project No:
B2102331

Drawing No:
Boring Location Sketch

Drawn By: KJS
Drawn Date: 5/5/2023
Checked By: AM
Last Modified: 5/5/2023

Project Information

Clear Creek Trail
Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

Sheet:
1 of 8

Figure 1

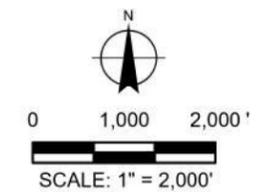


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Soil Boring



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Half Moon Avenue
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Johnson County, Iowa

**Soil Boring
Location Plan**

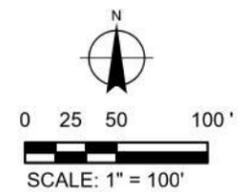
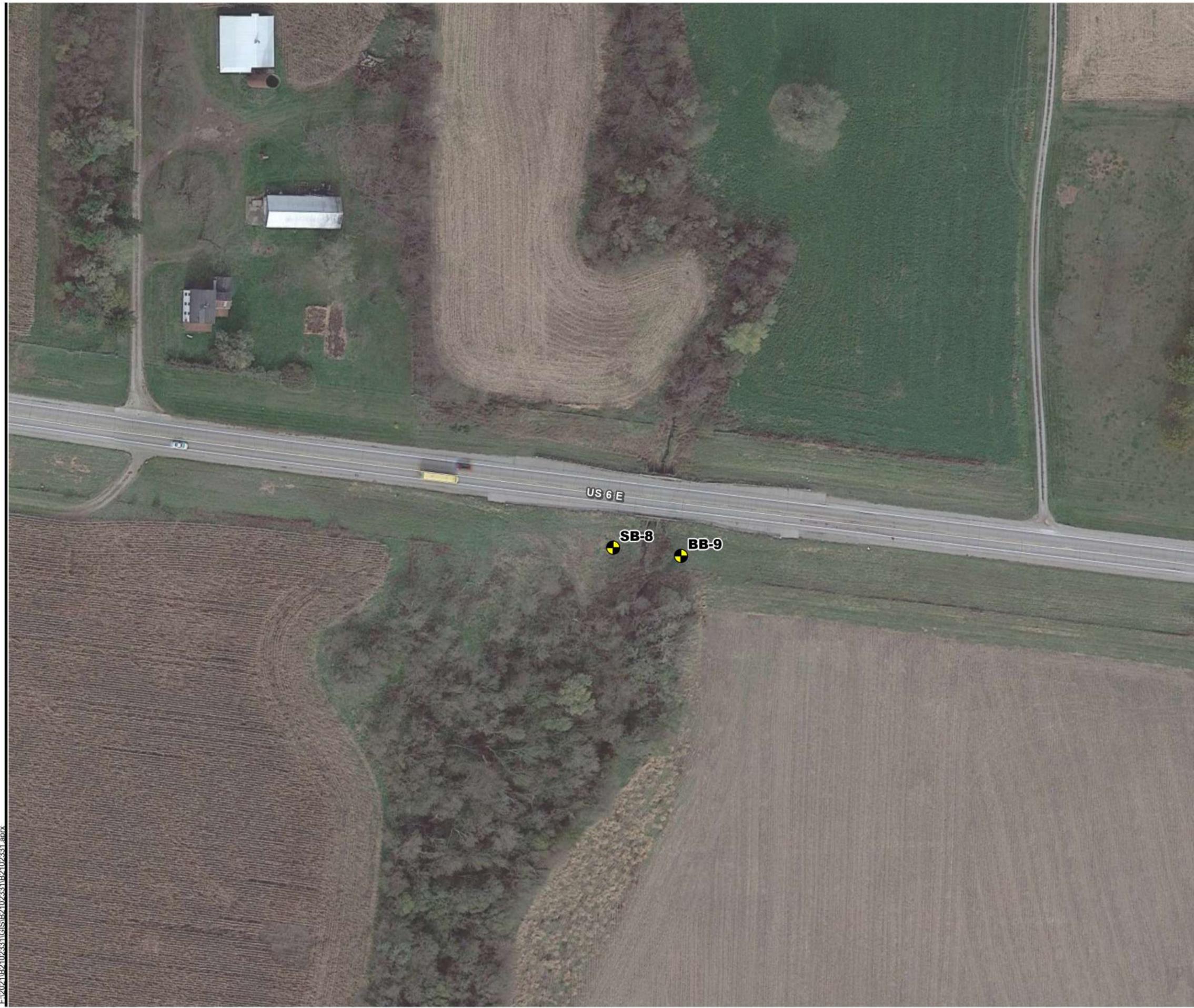


Image Source: Google Earth Imagery

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Soil Boring

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Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

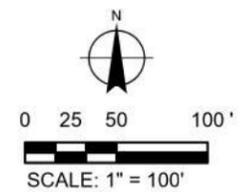
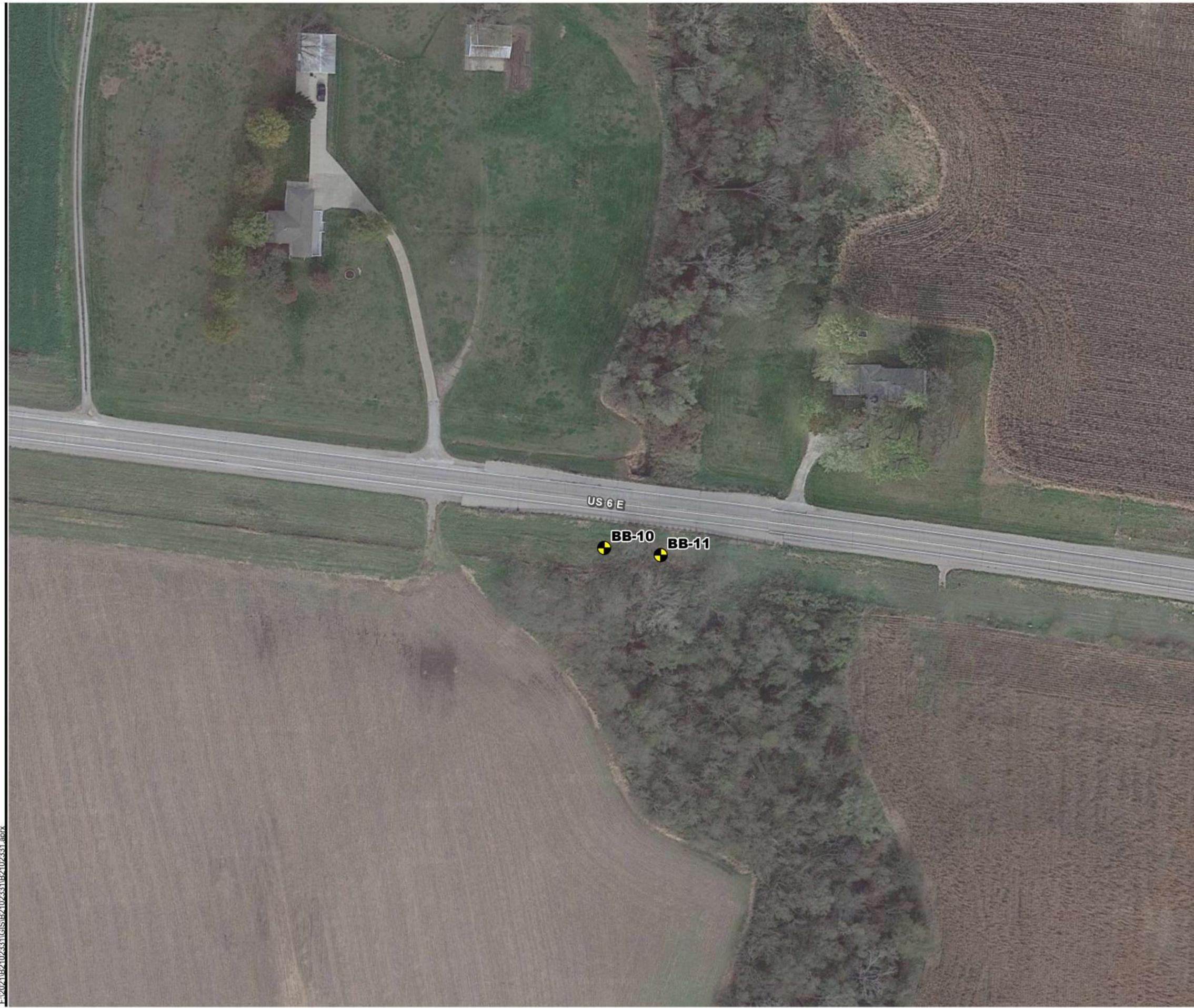


Image Source: Google Earth Imagery



Soil Boring

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INTERTEC**
The Science You Build On.
1901 16 Ave SW, Suite 2
Cedar Rapids, IA 50322
319.365.0961
braunintertec.com



Drawing Information

Project No:
B2102331
Drawing No:
Boring Location Sketch
Drawn By: KJS
Drawn Date: 5/5/2023
Checked By: AM
Last Modified: 5/5/2023

Project Information

Clear Creek Trail
Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

Sheet:
4 of 8 Figure 1



0 25 50 100'



SCALE: 1" = 100'



Image Source: Google Earth Imagery

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Clear Creek Trail

Johnson County, Iowa

Soil Boring
Location Plan

Sheet:
5 of 8 Figure 1

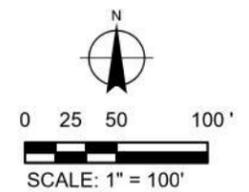
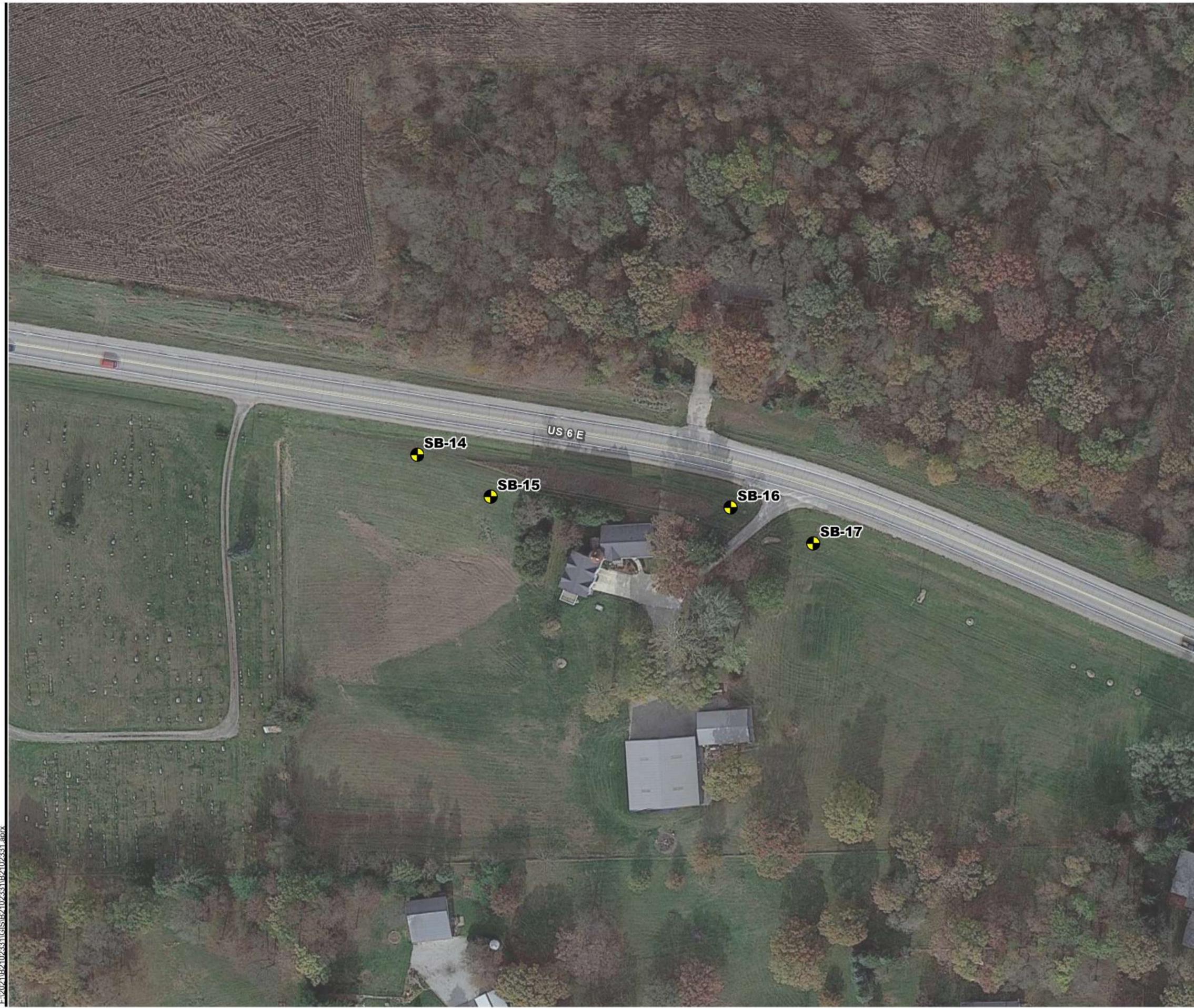


Image Source: Google Earth Imagery

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F:\2024\B2102331\GIS\B2102331\B2102331.dwg

Soil Boring



Drawing Information

Project No:
B2102331

Drawing No:
Boring Location Sketch

Drawn By: KJS
Drawn Date: 5/5/2023
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Last Modified: 5/5/2023

Project Information

Clear Creek Trail
Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

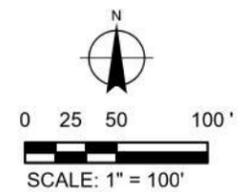


Image Source: Google Earth Imagery



Soil Boring



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Boring Location Sketch

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Drawn Date: 5/5/2023
Checked By: AM
Last Modified: 5/5/2023

Project Information

Clear Creek Trail
Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

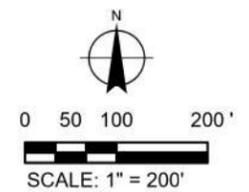


Image Source: Google Earth Imagery

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Drawn By: KJS
Drawn Date: 5/5/2023
Checked By: AM
Last Modified: 5/5/2023

Project Information

Clear Creek Trail
Half Moon Avenue
to F.W. Kent Park

Clear Creek Trail

Johnson County, Iowa

**Soil Boring
Location Plan**

Sheet:
8 of 8

Figure 1

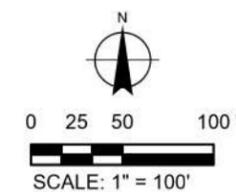


Image Source: Google Earth Imagery

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-01	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71582	LONGITUDE: -91.72315
Johnson County, Iowa				START DATE: 02/28/23	END DATE: 02/28/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 734.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
733.5 0.5		TOPSOIL						
		LEAN CLAY (CL), brown to brownish gray, moist, medium to stiff (LOESS)		2-3-3 (6) 12"		30		
				3-4-5 (9) 18"				
				5				
727.5 6.5			LEAN CLAY (CL), brownish gray to gray, moist to wet, soft to medium (LOESS)		2-2-2 (4) 18"		33	LL=42, PL=22, PI=20
					TW 24"	0.25		
			10					
				3-2-2 (4) 12"		29	Bulk sample obtained 15-20 feet.	
			15					
				2-2-2 (4) 18"		27		
			20					
				2-3-3 (6) 18"				
709.0 25.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)		25				
				3-4-5 (9) 18"				
			30					

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-01	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71582	LONGITUDE: -91.72315
Johnson County, Iowa				START DATE: 02/28/23	END DATE: 02/28/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 734.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
694.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)		4-5-5 (10) 12"		20	
40.0		END OF BORING		4-6-8 (14) 16"			Water observed at 17.0 feet while drilling.
		Boring immediately backfilled					

Project Number B2102331				BORING: SB-02	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71578	LONGITUDE: -91.72278
Johnson County, Iowa				START DATE: 02/28/23	END DATE: 02/28/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 734.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
		SURFACING: Grass		WEATHER: Partly cloudy & 40°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
733.5		TOPSOIL					
0.5		LEAN CLAY (CL), trace organic, brown and gray, moist, medium (LOESS)		2-2-3 (5) 18"	1	30	Bulk sample obtained 10-20 feet. DD=94 pcf
729.0		LEAN CLAY (CL), brown and gray, moist to wet, very soft to soft (LOESS)		TW 6"			
5.0			5	2-2-1 (3) 12"	31		
				0-0-0 WOH/ 0"			
			10				
				2-2-2 (4) 16"	30	30	LL=32, PL=19, PI=13 DD=96 pcf q _u =0.62 tsf
716.0		LEAN CLAY (CL), gray, moist, medium (LOESS)		1-2-3 (5) 18"			
714.0		<i>Silt seam near 19 feet</i>	20				
20.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, medium to stiff (GLACIAL TILL)		TW 12"			
			25				
				4-6-6 (12) 14"			
			30				

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-02	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71578	LONGITUDE: -91.72278
Johnson County, Iowa				START DATE: 02/28/23	END DATE: 02/28/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 734.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
698.0	Water Level	SANDY LEAN CLAY (CL), trace Gravel, brown, moist, medium to stiff (GLACIAL TILL)	35	4-6-7 (13) 18"			
36.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)	40	11-13-12 (25) 0" 10-12-13 (25) 16"		15	LL=32, PL=13, PI=19
689.0			45	10-12-10 (22) 18" 11-12-13 (25) 18"			
45.0		END OF BORING Boring immediately backfilled					

Project Number B2102331				BORING: SB-03	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71596	LONGITUDE: -91.72233
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 744.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
		SURFACING: Grass		WEATHER: Partly cloudy & 40°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
743.5		TOPSOIL					
0.5		LEAN CLAY (CL), brown and gray, moist, medium (LOESS)		3-3-3 (6) 12"			
			5	3-3-3 (6) 14"		30	Bulk sample obtained 5-15 feet.
				2-2-3 (5) 18"			
			10	TW 16"			
				2-2-3 (5) 18"		28	LL=31, PL=21, PI=10
				2-3-3 (6) 18"		29	
721.0		SANDY LEAN CLAY (CL), brown, moist, stiff (GLACIAL TILL)		4-6-8 (14) 18"		19	LL=32, PL=15, PI=17
23.0			25				
		Sand seam near 29 feet		5-7-7 (14) 18"			
			30				

Continued on next page

Project Number B2102331				BORING: SB-03	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71596	LONGITUDE: -91.72233
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 744.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
711.0 33.0		SANDY LEAN CLAY (CL), brown, moist, stiff (GLACIAL TILL)					
		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff to hard (GLACIAL TILL) <i>Possible Cobbles near 34 feet</i>	35	8-15-23 (38) 0"			
704.0 40.0		END OF BORING	40	8-10-11 (21) 18"		13	Water not observed while drilling.
		Boring immediately backfilled					
			45				
			50				
			55				
			60				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-04	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71569	LONGITUDE: -91.72204
Johnson County, Iowa				START DATE: 03/01/23	END DATE: 03/01/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 735.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 45°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
734.5		TOPSOIL					
0.5		LEAN CLAY (CL), trace organic, brown, moist to wet, soft to medium (LOESS)		2-2-2 (4) 14"			
			5	2-2-2 (4) 0"			
				2-2-3 (5) 6"		18	LL=33, PL=19, PI=14
727.0		LEAN CLAY with SAND (CL), brown, moist, medium (LOESS)		2-2-3 (5) 6"		17	
8.0			10				
721.5		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, very stiff (GLACIAL TILL)		TW 12"			
13.5			15				
				10-12-12 (24) 4"		23	
			20				
				6-8-10 (18) 18"			
			25				
				9-10-12 (22) 18"		16	
			30				

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-04	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71569	LONGITUDE: -91.72204
Johnson County, Iowa				START DATE: 03/01/23	END DATE: 03/01/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 735.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 45°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
695.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, very stiff (GLACIAL TILL)		10-11-13 (24) 9"			
40.0		END OF BORING		10-12-13 (25) 14"			
		Boring immediately backfilled					Water observed at 17.0 feet while drilling.

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-05	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71591	LONGITUDE: -91.72191
Johnson County, Iowa				START DATE: 03/14/23	END DATE: 03/14/23
DRILLER: AI/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 746.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 30°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
745.5		TOPSOIL					
0.5		LEAN CLAY (CL), brown, moist, medium to stiff (LOESS)		3-4-5 (9) 16"			
			5	3-4-5 (9) 18"		25	Bulk sample obtained 5-20 feet.
738.0		SILT (ML), brown, moist, medium (LOESS)		2-3-3 (6) 18"			
8.0			10	TW 15"		25	LL=29, PL=23, PI=6 DD=103 pcf q _u =0.56 tsf
732.5		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff (GLACIAL TILL)		3-4-5 (9) 16"			
13.5			15				
			20	4-5-8 (13) 18"		30	
722.5		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, very stiff to hard (GLACIAL TILL)		6-10-12 (22) 18"			
23.5			25				
			30	7-11-14 (25) 18"		47	

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-05	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71591	LONGITUDE: -91.72191
Johnson County, Iowa				START DATE: 03/14/23	END DATE: 03/14/23
DRILLER: AI/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 746.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 30°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, very stiff to hard (GLACIAL TILL)		10-14-16 (30) 18"			
		<i>Sand seam near 39 feet</i>		10-17-20 (37) 18"			
706.0 40.0		END OF BORING					Water observed at 34.5 feet while drilling.
		Boring immediately backfilled					

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-06	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71547	LONGITUDE: -91.72167
Johnson County, Iowa				START DATE: 02/27/23	END DATE: 02/27/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 737.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
736.5		TOPSOIL					
0.5		LEAN CLAY (CL), brown to brownish gray, moist to wet, soft to medium (LOESS)		2-3-3 (6) 12"			
				TW 20"	1	28	DD=95 pcf
			5				
				2-2-2 (4) 10"			
				3-2-1 (3) 12"		31	LL=36, PL=21, PI=15
			10				Bulk sample obtained 3-10 feet.
				2-3-2 (5) 18"			
			15				
				2-2-2 (4) 18"		28	
			20				
				TW 12"		24	LL=25, PL=13, PI=12 DD=102 pcf q _u =0.29 tsf
712.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff (GLACIAL TILL)	25				
25.0				3-6-8 (14) 16"			
			30				

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-06	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71547	LONGITUDE: -91.72167
Johnson County, Iowa				START DATE: 02/27/23	END DATE: 02/27/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 737.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
704.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff (GLACIAL TILL)	35	6-11-9 (20) 18"		16	
33.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)					
697.0		END OF BORING	40	6-8-9 (17) 14"			Water observed at 20.0 feet while drilling.
40.0		Boring immediately backfilled					
			45				
			50				
			55				
			60				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-07	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71524	LONGITUDE: -91.72148
Johnson County, Iowa				START DATE: 02/24/23	END DATE: 02/24/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 727.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
		SURFACING: Grass		WEATHER: Cloudy & 20°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
726.5		TOPSOIL					
0.5		LEAN CLAY (CL), trace organic, brown to brownish gray, moist, medium to stiff (LOESS)		2-3-4 (7) 7"	1.5	30	DD=93 pcf
				TW 20"			
			5				
				2-3-4 (7) 16"			
719.5		LEAN CLAY (CL), brownish gray, moist, soft to medium (LOESS)		2-2-2 (4) 18"			
7.5			10				
				2-1-3 (4) 16"		26	
			15				
				3-3-3 (6) 18"			
			20				
				TW 24"		18	DD=112 pcf q _u =0.25 tsf
702.0		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, stiff to very stiff (GLACIAL TILL)	25				
25.0				4-6-8 (14) 18"			
			30				

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-07	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71524	LONGITUDE: -91.72148
Johnson County, Iowa				START DATE: 02/24/23	END DATE: 02/24/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 727.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Cloudy & 20°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
687.0		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, stiff to very stiff (GLACIAL TILL)		8-11-13 (24) 18"			
40.0		END OF BORING		8-14-16 (30) 0"			
		Boring immediately backfilled					Water observed at 25.0 feet while drilling.

Project Number B2102331				BORING: SB-08	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71458	LONGITUDE: -91.71512
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 715.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
714.5		TOPSOIL					
0.5		LEAN CLAY (CL), trace organic, and Sand, dark brown, moist, medium (ALLUVIUM)		2-2-3 (5) 8"		23	
			5	3-3-4 (7) 9"			
				2-3-2 (5) 0"			
706.0		SILT (ML), Clayey, gray, moist to wet, soft to medium (ALLUVIUM) <i>Sand seam near 9 feet</i>		2-2-2 (4) 12"			Mud rotary drilling began at 10 feet.
9.0			10				
				1-2-2 (4) 18"		36	LL=34, PL=25, PI=9
			15				
				2-2-2 (4) 18"		31	
			20				
				2-3-3 (6) 18"			
			25				
				3-3-3 (6) 18"		30	
			30				

Continued on next page

Project Number B2102331				BORING: SB-08	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71458	LONGITUDE: -91.71512
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 715.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
681.5		SILT (ML), Clayey, gray, moist to wet, soft to medium (ALLUVIUM)					
33.5		LEAN CLAY (CL), gray, moist, stiff (ALLUVIUM) <i>Trace organic near 34 feet</i>	35	4-4-5 (9) 18"		28	
676.5		LEAN CLAY with SAND (CL), gray, moist, medium to stiff (ALLUVIUM)	40	0-4-6 (10) 18"		25	
670.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist to wet, stiff (ALLUVIUM)	45	3-3-5 (8) 18"			
45.0			50	4-4-5 (9) 18"		23	
		<i>Trace organic near 54 feet</i>	55	3-4-5 (9) 18"			
656.5		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, gray, wet, dense to very dense (GLACIAL OUTWASH)	60	6-13-16 (29) 10"			
58.5				9-18-48			

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331					BORING: SB-08				
Geotechnical Evaluation					LOCATION:				
Clear Creek Trail					DATUM: WGS84				
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.71458	LONGITUDE: -91.71512			
Johnson County, Iowa					START DATE: 03/02/23	END DATE: 03/03/23			
DRILLER: AL/KR		LOGGED BY: A. Martin		SURFACE ELEVATION: 715.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	SURFACING: Grass	WEATHER: Partly cloudy & 40°
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks		
		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, gray, wet, dense to very dense (GLACIAL OUTWASH)		(66) 10"					
		<i>Possible Cobbles below 68 feet</i>							
			70	10-21-23 (44) 12"		17			
			75	10-16-21 (37) 18"					
			80	12-16-22 (38) 16"					
631.5		SHALE, moderately hard, Apparent Shale		50/1" (REF) 0"			Bedrock type based on geological research. No samples were recovered during drilling		
83.5			85						
			90	50/1" (REF) 0"					
621.4		END OF BORING		50/1" (REF) 0"			Water level obscured due to mud rotary drilling.		
93.6		Boring immediately backfilled	95						

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-09	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71455	LONGITUDE: -91.71486
Johnson County, Iowa				START DATE: 03/08/23	END DATE: 03/08/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 714.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
		SURFACING: Grass		WEATHER: Partly cloudy & 40°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
713.5		TOPSOIL					
0.5		LEAN CLAY (CL), with organic, brown, moist, medium (LOESS)		2-3-4 (7) 8"			
710.5		LEAN CLAY with SAND (CL), dark brown, moist, medium (ALLUVIUM) <i>Trace organic above 5 feet</i>	5	2-4-4 (8) 12"		24	Switched to mud rotary drilling method at 5 feet.
707.5		LEAN CLAY with SAND (CL), dark brown, wet, very soft (ALLUVIUM)		0-0-1 (1) 9"		30	
706.0		SILT (ML), with Sand, Clayey, gray to dark gray, wet, soft (ALLUVIUM)	10	1-1-1 (2) 6"			
				2-2-1 (3) 12"		37	P200=75%
		<i>Trace organic near 19 feet</i>		1-1-2 (3) 12"		49	OC= 5.2%
691.0		LEAN CLAY (CL), trace Sand, gray, moist, medium (ALLUVIUM)	25	2-3-3 (6) 14"			
23.0				2-3-3 (6) 16"		31	

Continued on next page

Project Number B2102331				BORING: SB-09	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71455	LONGITUDE: -91.71486
Johnson County, Iowa				START DATE: 03/08/23	END DATE: 03/08/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 714.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
680.0		LEAN CLAY (CL), trace Sand, gray, moist, medium (ALLUVIUM)		4-4-4 (8) 18"			
34.0		LEAN CLAY (CL), brown, moist, medium (ALLUVIUM)	35				
676.0		LEAN CLAY (CL), with Sand seams, gray, moist, stiff (ALLUVIUM)	40	4-4-6 (10) 18"		31	
43.0		POORLY GRADED SAND with CLAY (SP-SC), fine to medium-grained, gray, wet, medium dense (GLACIAL OUTWASH)	45	7-13-13 (26) 12"		20	P200=12%
665.5		LEAN CLAY (CL), trace Gravel, gray, moist to wet, medium to very stiff (GLACIAL TILL) <i>Sand seam near 49 feet</i>	50	3-4-4 (8) 18"		25	LL=33, PL=15, PI=18
48.5				55	3-4-5 (9) 10"		
654.5		POORLY GRADED SAND with CLAY (SP), fine to medium-grained, gray, wet, medium dense (GLACIAL OUTWASH)	60	5-9-9 (18) 10"			
59.5				5-10-12			

Continued on next page

Project Number B2102331				BORING: SB-09	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71455	LONGITUDE: -91.71486
Johnson County, Iowa				START DATE: 03/08/23	END DATE: 03/08/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 714.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND with CLAY (SP), fine to medium-grained, gray, wet, medium dense (GLACIAL OUTWASH)	65	(22) 0"			
			70	15-16-9 (25) 5"			
640.5 73.5		POORLY GRADED SAND with CLAY and GRAVEL (SP), fine to coarse-grained, possible Cobbles, gray, wet, dense to very dense (GLACIAL OUTWASH)	75	17-22-35 (57) 0"			
			80	9-17-15 (32) 6"			
630.5 83.5		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, gray, wet, very dense (GLACIAL OUTWASH)	85	23-29-42 (71) 9"			
625.5 88.5		SHALE, moderately hard, Apparent Shale	90	50/1" (REF) 0"			Bedrock type based on geological research. No samples were recovered during drilling
			95	50/1" (REF) 0"			

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-10	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71422	LONGITUDE: -91.71152
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
707.0		TOPSOIL					
1.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, light brown, moist, loose to medium dense (ALLUVIUM)		2-3-4 (7) 4"			
			5	2-4-7 (11) 6"			
		Clay seam near 7 feet		2-5-6 (11) 2"		19	
			10	2-5-2 (7) 3"			Mud rotary drilling began at 10 feet.
697.0		SILT (ML), trace Sand, Clayey, gray, moist, medium (ALLUVIUM)					
11.0			15	2-3-4 (7) 6"		32	
			20	2-3-5 (8) 6"			LL=31, PL=24, PI=7
			25	2-3-5 (8) 6"			
			30	2-4-4 (8) 6"		30	

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-10	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71422	LONGITUDE: -91.71152
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
674.0		SILT (ML), trace Sand, Clayey, gray, moist, medium (ALLUVIUM)		8-9-11 (20) 3"			
34.0		POORLY GRADED SAND (SP), fine to medium-grained, gray, wet, medium dense (ALLUVIUM)	35				
669.5		LEAN CLAY (CL), trace Sand, gray, moist, stiff (ALLUVIUM)	40	4-5-6 (11) 7"		31	
664.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, gray, wet, medium dense (GLACIAL OUTWASH)	45	8-12-15 (27) 6"			
			50	12-14-15 (29) 6"		17	
			55	10-12-14 (26) 6"			
			60	10-13-15 (28) 2"			
645.0		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, dark gray, wet, medium dense (GLACIAL OUTWASH)		10-12-13			
63.0							

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-10	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71422	LONGITUDE: -91.71152
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
635.0		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, dark gray, wet, medium dense (GLACIAL OUTWASH)	65	(25) 4"		16	
73.0		WELL-GRADED SAND with CLAY (SW-SC), fine to coarse-grained, and Gravel, gray and brown, wet, very dense (GLACIAL OUTWASH)	70	10-11-12 (23) 3"			
629.0		SHALE, moderately hard, Apparent Shale	75	15-24-30 (54) 4"			Bedrock type based on geological research. No samples were recovered during drilling
79.0			80	40-50/3" (REF) 1"			
			85	50/2.5" (REF) 0"			
619.4		END OF BORING	90	50/1" (REF) 0"			Water level obscured due to mud rotary drilling method.
88.6		Boring immediately backfilled	95				

Project Number B2102331				BORING: SB-11	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71419	LONGITUDE: -91.71130
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
707.0		TOPSOIL					
1.0		SANDY LEAN CLAY (CL), brown, moist to wet, soft to medium (ALLUVIUM)		2-2-2 (4) 6"			
703.0				2-2-3 (5) 5"			
5.0		SILTY CLAY (CL-ML), dark brown, wet, soft to medium (ALLUVIUM)	5	1-2-2 (4) 5"			LL=27, PL=21, PI=6
		<i>Trace organic near 9 feet</i>		1-2-3 (5) 4"			
698.0		SILT (ML), trace Sand, Clayey, gray, moist, medium (ALLUVIUM)	10				Mud rotary drilling began at 10 feet.
10.0				2-3-3 (6) 5"		35	
			15				
				2-3-5 (8) 5"			
			20				
				2-3-4 (7) 6"		27	
			25				
				2-3-4 (7) 6"			
			30				

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-11	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71419	LONGITUDE: -91.71130
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
674.0		SILT (ML), trace Sand, Clayey, gray, moist, medium (ALLUVIUM)		8-8-10 (18)			
34.0		CLAYEY SAND (SC), fine to medium-grained, gray, moist, medium dense (ALLUVIUM)	35	1"			
669.5		LEAN CLAY (CL), trace Sand, gray, moist, stiff (ALLUVIUM)	40	4-5-6 (11)		21	
38.5				5"			
664.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, gray, wet, medium dense (GLACIAL OUTWASH)	45	8-11-14 (25)			
44.0				5"			
			50	8-9-10 (19)			
				6"			
			55	10-10-12 (22)		19	
				2"			
			60	10-11-13 (24)			
				3"			
645.0		POORLY GRADED SAND (SP), fine to coarse-grained, dark gray, wet, dense (GLACIAL OUTWASH)		13-17-20			
63.0							

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-11	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71419	LONGITUDE: -91.71130
Johnson County, Iowa				START DATE: 03/02/23	END DATE: 03/03/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 708.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Partly cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
640.0		POORLY GRADED SAND (SP), fine to coarse-grained, dark gray, wet, dense (GLACIAL OUTWASH)	65	(37) 3"		15	
68.0		CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, dark gray, wet, dense to very dense (GLACIAL OUTWASH)	70	15-18-24 (42) 4"			
			75	20-28-31 (59) 3"		14	
629.0		SHALE, moderately hard, Apparent Shale	80	32-50/4" (REF) 2"			Bedrock type based on geological research. No samples were recovered during drilling
79.0				50/1" (REF) 0"			
619.4		END OF BORING		50/1" (REF) 0"			Water level obscured due to mud rotary drilling method.
88.6		Boring immediately backfilled	90				
			95				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-12	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71234	LONGITUDE: -91.69982
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 706.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Pavement		WEATHER: Cloudy & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
705.5 0.5		TOPSOIL					
		LEAN CLAY (CL), trace organic, dark brown, moist to wet, medium to stiff (ALLUVIUM)		3-3-3 (6)			
				3-4-5 (9)			
			5				Mud rotary drilling began at 5 feet.
				2-3-3 (6)		33	
				4"			
				2-3-4 (7)			
			10	4"			
693.0 13.0		SANDY LEAN CLAY (CL), dark brown, wet, stiff (ALLUVIUM)		3-4-5 (9)		27	
			15	14"			
686.0 20.0		POORLY GRADED SAND (SP), fine to medium-grained, brown, wet, loose to medium dense (GLACIAL OUTWASH)		3-5-6 (11)			
			20	8"			
				8-8-10 (18)		22	P200=4%
			25	4"			
				9-10-10 (20)			
			30	12"			

Continued on next page

Project Number B2102331				BORING: SB-12	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71234	LONGITUDE: -91.69982
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 706.0 ft		SURFACING: Pavement	WEATHER: Cloudy & 40°
RIG: 5501	METHOD: 3 1/4" HSA				

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
668.0		POORLY GRADED SAND (SP), fine to medium-grained, brown, wet, loose to medium dense (GLACIAL OUTWASH)	35	3-5-5 (10) 2"			
38.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, wet, medium dense (GLACIAL OUTWASH)	40	3-5-6 (11) 4"			
663.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)	45	13-6-7 (13) 6"		18	
43.0	50		6-7-7 (14) 7"				
	55		5-5-8 (13) 12"				
			60	5-7-8 (15) 14"			
643.0		SILTY CLAY with SAND (CL-ML), gray, moist, very stiff (GLACIAL TILL)		8-11-10			
63.0		Continued on next page					

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-12	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71234	LONGITUDE: -91.69982
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 706.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Pavement		WEATHER: Cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SILTY CLAY with SAND (CL-ML), gray, moist, very stiff (GLACIAL TILL)	65	(21) 12"		23	LL=25, PL=21, PI=4
			70	8-10-11 (21) 12"			
633.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)	75	5-10-13 (23) 12"		16	
73.0			80	7-11-13 (24) 14"			
623.9		<i>Apparent Bedrock from 82 to 82.1 feet</i>		50/1" (REF) 0"			Water level obscured due to mud rotary drilling method.
82.1		END OF BORING					
		Boring immediately backfilled					
			85				
			90				
			95				

Project Number B2102331				BORING: SB-13	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71219	LONGITUDE: -91.69937
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 710.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
709.5		TOPSOIL					
0.5		LEAN CLAY with SAND (CL), and organic, brown, moist, soft (ALLUVIUM)		1-1-1 (2) 1"			
706.0		LEAN CLAY with SAND (CL), trace organic, brown, moist, medium (ALLUVIUM)	5	2-2-3 (5) 14"		26	Mud rotary drilling method began at 5 feet.
704.0		LEAN CLAY (CL), trace Sand, and organic, dark brown, moist to wet, soft (ALLUVIUM)		1-1-1 (2) 10"			
700.0		LEAN CLAY (CL), trace Sand, dark brown to brown, moist to wet, soft (ALLUVIUM)	10	1-2-2 (4) 10"		44	
10.0		<i>Sand seam near 14 feet</i>	15	0-1-1 (2) 16"			
			20	0-0-2 (2) 12"		33	LL=37, PL=20, PI=17
686.5		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)	25	6-7-10 (17) 10"			
23.5			30	7-8-10 (18) 10"			

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-13	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71219	LONGITUDE: -91.69937
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 710.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Cloudy & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
671.5	38.5	POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)	35	4-4-5 (9) 0"				
38.5		POORLY GRADED SAND (SP), fine to medium-grained, gray, moist to wet, medium dense to dense (GLACIAL OUTWASH)	40	9-12-15 (27) 12"				
		<i>Possible Cobbles near 46 feet</i>	45	20-27-22 (49) 2"				
661.5		48.5	SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)	50	5-5-6 (11) 14"		19	
				55	4-5-6 (11) 12"			
			60	4-5-6 (11) 12"				
				4-6-8				

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-13	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71219	LONGITUDE: -91.69937
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 710.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
641.5		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)	65	(14) 12"			
68.5		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff to hard (GLACIAL TILL) <i>Sand seam near 69 feet</i>	70	5-8-9 (17) 14"		24	
635.4		SHALE, moderately hard, Apparent Shale	75	10-12-50/1" (REF) 0"			Bedrock type based on geological research. No samples were recovered during drilling
74.6				50/1" (REF) 0"			
628.9				50/1" (REF) 0"			Water level obscured due to mud rotary drilling method.
81.1		END OF BORING Boring immediately backfilled					
			85				
			90				
			95				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331					BORING: SB-14			
Geotechnical Evaluation					LOCATION:			
Clear Creek Trail					DATUM: WGS84			
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.71120	LONGITUDE: -91.69417		
Johnson County, Iowa					START DATE: 03/16/23	END DATE: 03/16/23		
DRILLER: AL/KR	LOGGED BY: A. Martin		SURFACE ELEVATION: 758.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	SURFACING: Grass	WEATHER: Cloudy & 40°
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
757.5 0.5		TOPSOIL LEAN CLAY (CL), brown, moist, medium (LOESS)		3-3-2 (5) 0"				
			5	2-4-4 (8) 12"			Bulk sample obtained 5-15 feet.	
750.0 8.0		LEAN CLAY (CL), brown, moist, soft (LOESS)		TW 24"		23	DD=106 pcf q _u =0.26 tsf	
748.0 10.0		SILTY CLAY (CL-ML), brown, moist, medium (ALLUVIUM) <i>Sand seam near 10 feet</i>	10					
743.0 15.0		SANDY LEAN CLAY (CL), trace Gravel, reddish brown, moist, stiff (GLACIAL TILL)	15	3-3-3 (6) 18"		21	LL=26, PL=20, PI=6	
			20	3-5-7 (12) 18"				
			25	3-5-5 (10) 16"			LL=30, PL=12, PI=18	
728.0 30.0		END OF BORING	30	3-5-6 (11) 14"				
Boring immediately backfilled								

Project Number B2102331					BORING: SB-15			
Geotechnical Evaluation					LOCATION:			
Clear Creek Trail					DATUM: WGS84			
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.71107	LONGITUDE: -91.69389		
Johnson County, Iowa					START DATE: 03/16/23	END DATE: 03/16/23		
DRILLER: AL/KR	LOGGED BY: A. Martin		SURFACE ELEVATION: 769.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	SURFACING: Grass	WEATHER: Cloudy & 40°
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
768.5 0.5		TOPSOIL						
		LEAN CLAY (CL), trace organic, brown, moist, soft (LOESS)		2-2-2 (4) 14"				
764.0 5.0		LEAN CLAY (CL), brown, moist, stiff (LOESS)	5	2-2-2 (4) 10"		27		
				3-5-5 (10) 18"		23	LL=31, PL=20, PI=11	
				TW 18"				
751.0 18.0			SANDY LEAN CLAY (CL), trace Gravel, reddish brown, moist, stiff to very stiff (GLACIAL TILL)	20	2-4-5 (9) 18"			
		<i>With Cobble near 24 feet</i>	25	TW 12"		15	DD=117 pcf q _u =1.3 tsf	
739.0 30.0		<i>With Sand seam near 29 feet</i>	30	5-10-13 (23) 14"			Water not observed while drilling.	
END OF BORING								
Boring immediately backfilled								

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-16	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.71103	LONGITUDE: -91.63298
Johnson County, Iowa				START DATE: 03/16/23	END DATE: 03/16/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 767.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Grass		WEATHER: Cloudy & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
766.5		TOPSOIL					
0.5		LEAN CLAY (CL), brownish gray, moist, soft to medium (LOESS)		1-2-2 (4) 0"			
			5	2-3-3 (6) 6"		27	Bulk sample obtained 5-15 feet.
				TW 18"	0.55	29	DD=93 pcf
			10	3-3-4 (7) 12"			
			15	2-3-4 (7) 14"		34	
		<i>Silt seam near 19 feet</i>	20	3-3-3 (6) 14"			
744.0		LEAN CLAY (CL), brown, moist, stiff (LOESS)	25	3-5-5 (10) 16"		24	
738.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff (GLACIAL TILL)	30	3-5-5 (10) 7"			Water not observed while drilling.
737.0		END OF BORING					
30.0		Boring immediately backfilled					

Project Number B2102331					BORING: SB-17			
Geotechnical Evaluation					LOCATION:			
Clear Creek Trail					DATUM: WGS84			
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.71092	LONGITUDE: -91.69266		
Johnson County, Iowa					START DATE: 03/16/23	END DATE: 03/16/23		
DRILLER: AL/KR	LOGGED BY: A. Martin		SURFACE ELEVATION: 767.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	SURFACING: Grass	WEATHER: Cloudy & 40°
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
766.5 0.5		TOPSOIL						
		LEAN CLAY (CL), brownish gray, moist to wet, medium (LOESS)		2-2-3 (5) 10"				
				3-3-3 (6) 7"				
			5					
				2-3-3 (6) 16"		28		
		Trace Sand near 8 feet		3-3-4 (7) 13"				
			10					
				2-3-3 (6) 18"		28		
			15					
				TW 24"				
			20					
744.0 23.0		LEAN CLAY (CL), brownish gray to brown, moist, stiff (LOESS)		3-5-5 (10) 16"				
			25					
				3-5-6 (11) 4"		23		
737.0 30.0		END OF BORING	30					
		Boring immediately backfilled					Water not observed while drilling.	

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-18	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70903	LONGITUDE: -91.69083
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: DM/AC	LOGGED BY: A. Martin	SURFACE ELEVATION: 796.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Asphalt		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
795.8 0.3		PAVEMENT					
794.5 1.5		APPARENT AGGREGATE BASE					
		POORLY GRADED SAND (SP), fine-grained, brown, moist, loose to medium dense (EOLIAN)		3-4-5 (9) 4"			
			5	3-4-6 (10) 6"			
				4-5-6 (11) 8"			
			10	5-6-7 (13) 10"			Bulk sample obtained 15-25 feet.
782.0 14.0		LEAN CLAY (CL), brown and gray, moist, medium (ALLUVIUM)	15	2-2-3 (5) 10"		21	LL=24, PL=16, PI=8
777.5 18.5		SILTY CLAY (CL-ML), gray, moist, stiff (ALLUVIUM)	20	2-4-6 (10) 7"		26	LL=27, PL=21, PI=6
771.0 25.0		END OF BORING	25	3-5-5 (10) 8"			Water not observed while drilling.
		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-19	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70877	LONGITUDE: -91.69082
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 798.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
		SURFACING: Road		WEATHER: Sunny & 30°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
797.5		PAVEMENT					
0.5		APPARENT AGGREGATE BASE					
797.0		POORLY GRADED SAND (SP), fine-grained, brown, moist, loose (EOLIAN)		3-4-6 (10) 12"			
1.0		Clay seam near 4 and 7 feet	5	3-5-5 (10) 16"			Bulk sample obtained 5-20 feet.
790.0		CLAYEY SAND (SC), fine-grained, brown, moist, medium dense (ALLUVIUM)		4-5-5 (10) 18"			
8.0			10	3-6-8 (14) 18"		8	P200=18%
			15	4-7-7 (14) 18"			
			20	4-7-8 (15) 18"		6	
775.0		SILTY CLAY (CL-ML), gray, moist, stiff (ALLUVIUM)		3-5-5 (10) 18"		27	
23.0			25				Water not observed while drilling.
773.0		END OF BORING					
25.0		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-20	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70775	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/01/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 772.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Road		WEATHER: Sunny & 30°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
771.5		PAVEMENT					
0.5		APPARENT AGGREGATE BASE		10-12-12 (24) 0"			Bulk sample obtained 2-10 feet.
769.0							
3.0		POORLY GRADED SAND (SP), fine-grained, gray, moist, medium dense (EOLIAN)	5	TW		5	
764.0				9-9-7 (16) 12"			
8.0		CLAYEY SAND (SC), fine-grained, gray, wet, very loose (ALLUVIUM)		2-0-0 WOH/12" 10"			P200=39%
762.0			10				
10.0		SANDY LEAN CLAY (CL), gray, moist, stiff (ALLUVIUM)					
757.0			15	2-6-9 (15) 18"		20	
15.0		POORLY GRADED SAND (SP), fine to medium-grained, brown, wet, medium dense (ALLUVIUM)					
			20	4-8-8 (16) 18"			
747.0			25	6-10-12 (22) 16"			
25.0		END OF BORING					Water observed at 8.0 feet while drilling.
		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-21	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70747	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 765.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Road		WEATHER: Sunny & 30°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
764.5		PAVEMENT					
0.5		APPARENT AGGREGATE BASE					
763.5		FILL: LEAN CLAY (CL), brown, moist, stiff		8-8-8 (16) 0"			Bulk sample obtained 3-5 feet.
1.5							
762.0		POORLY GRADED SAND (SP), fine-grained, brown, moist, medium dense (EOLIAN)		TW		11	
3.0			5				
				6-8-9 (17) 16"			
756.0		LEAN CLAY (CL), with organic, black, moist, medium (ALLUVIUM)		6-3-3 (6) 12"			Bulk sample obtained 10-15 feet.
9.0			10				
755.0		POORLY GRADED SAND (SP), fine-grained, with Clay, gray, wet, loose (ALLUVIUM)		2-3-3 (6) 12"			
10.0			15				
				2-1-1 (2) 18"		20	Bulk sample obtained 20-25 feet.
746.5		SANDY LEAN CLAY (CL), gray, moist, very soft to soft (ALLUVIUM)		2-1-1 (2) 18"			LL=25, PL=14, PI=11
18.5			20				
				0-0-1 (1) 18"		31	
			25				
			30				

Continued on next page

Project Number B2102331				BORING: SB-21	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70747	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: AL/KR	LOGGED BY: A. Martin	SURFACE ELEVATION: 765.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Road		WEATHER: Sunny & 30°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SANDY LEAN CLAY (CL), gray, moist, very soft to soft (ALLUVIUM)					
		<i>Sand seam near 34 feet</i>					
726.0 39.0				0-3-4 (7) 18"			
724.0 41.0		SANDY LEAN CLAY (CL), gray, moist, medium (ALLUVIUM)					
		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff (GLACIAL TILL)		5-7-7 (14) 12"		17	
720.0 45.0		END OF BORING					Water observed at 9.0 feet while drilling.
		Boring immediately backfilled					

Project Number B2102331				BORING: SB-22	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70720	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: DM/AC	LOGGED BY: A. Martin	SURFACE ELEVATION: 762.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Asphlt		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
761.8 0.3		PAVEMENT					
		APPARENT AGGREGATE BASE					
760.5 1.5		FILL: SANDY LEAN CLAY (CL), brown, moist		3-5-8 (13) 3"			Bulk sample obtained 1.5-10 feet.
				4-7-9 (16) 4"			
757.0 5.0		POORLY GRADED SAND with CLAY (SP-SC), fine-grained, brown, dry to moist, medium dense (EOLIAN)	5	4-7-7 (14) 6"			
753.5 8.5		LEAN CLAY (CL), trace Sand, brown, moist, soft to stiff (ALLUVIUM)	10	3-4-6 (10) 6"			Bulk sample obtained 10-30 feet.
		Trace Gravel near 15 feet	15	TW		29	
743.5 18.5		LEAN CLAY (CL), gray, moist, soft to medium (ALLUVIUM)	20	0-2-4 (6) 6"		28	
			25	1-2-3 (5) 6"			
732.0 30.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, medium (ALLUVIUM)	30	1-2-2 (4) 12"		29	Bulk sample obtained 30-45 feet.

Continued on next page

Project Number B2102331				BORING: SB-22	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70720	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/21/23	END DATE: 02/21/23
DRILLER: DM/AC	LOGGED BY: A. Martin	SURFACE ELEVATION: 762.0 ft		RIG: 5501	METHOD: 3 1/4" HSA
SURFACING: Asphlt		WEATHER: Sunny & 40°			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
723.5	Water Level	SANDY LEAN CLAY (CL), trace Gravel, gray, moist, medium (ALLUVIUM)	35	TW 18"		26	DD=97 pcf q _u =0.58 tsf
38.5		SANDY LEAN CLAY (CL), gray, moist to wet, soft (ALLUVIUM) <i>With Sand seam near 39 feet</i>	40	0-1-2 (3) 12"		32	
718.5 43.5 717.0 45.0		SANDY LEAN CLAY (CL), gray, moist, stiff (ALLUVIUM)	45	3-5-5 (10) 10"		18	Water observed at 23.5 feet while drilling.
		END OF BORING					
		Boring immediately backfilled					

Project Number B2102331				BORING: SB-23	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70691	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/20/23
DRILLER: DM/FA	LOGGED BY: A. Martin	SURFACE ELEVATION: 762.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
		SURFACING: Aggregate		WEATHER: Sunny & 40°	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
761.5 0.5		APPARENT AGGREGATE BASE FILL: LEAN CLAY (CL), with Sand, and debris, brown, moist		3-4-4 (8) 8"			
			5	4-4-6 (10) 6"			
756.0 6.0		LEAN CLAY (CL), trace organic, dark brown to brown, moist, stiff (ALLUVIUM)		4-4-5 (9) 8"			
			10	3-4-5 (9) 12"		24	LL=43, PL=21, PI=22
747.0 15.0		LEAN CLAY (CL), trace Sand, brown, moist, very soft (ALLUVIUM)		TW 18"	1.25	26	DD=96 pcf
			20	0-0-2 (2) 18"			
739.0 23.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, medium to stiff (GLACIAL TILL)		3-3-5 (8) 16"			
			30	4-7-8 (15) 16"		15	

Continued on next page

Project Number B2102331					BORING: SB-23			
Geotechnical Evaluation					LOCATION:			
Clear Creek Trail					DATUM: WGS84			
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.70691	LONGITUDE: -91.69084		
Johnson County, Iowa					START DATE: 02/20/23	END DATE: 02/20/23		
DRILLER: DM/FA	LOGGED BY: A. Martin		SURFACE ELEVATION: 762.0 ft		RIG: 8504	METHOD: 3 1/4" HSA	SURFACING: Aggregate	WEATHER: Sunny & 40°
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
729.0 33.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, medium to stiff (GLACIAL TILL)		5-8-10 (18) 12"		16		
		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, very stiff (GLACIAL TILL)						
722.0 40.0		END OF BORING		5-10-12 (22) 12"			Water not observed while drilling.	
		Boring immediately backfilled						

Project Number B2102331				BORING: SB-24	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70665	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/20/23
DRILLER: DM/FA	LOGGED BY: A. Martin	SURFACE ELEVATION: 764.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Aggregate		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
763.5		APPARENT AGGREGATE BASE					
0.5		FILL: LEAN CLAY (CL), little to with Sand seams, and debris, brown, moist		4-4-5 (9) 6"			
761.0		LEAN CLAY (CL), brown, moist, medium (LOESS)	5	TW 12"		24	DD=104 pcf q _u =0.62 tsf
758.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff to very stiff (GLACIAL TILL)		4-4-6 (10) 6"			
6.0			10	4-5-7 (12) 12"			
			15	TW 21"	2	15	DD=121 pcf
			20	4-7-8 (15) 12"			
739.0			25	6-8-8 (16) 16"		14	
25.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled					
			30				

Project Number B2102331				BORING: SB-25	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70640	LONGITUDE: -91.69083
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/20/23
DRILLER: A/AC	LOGGED BY: A. Martin	SURFACE ELEVATION: 764.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Asphalt		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
763.8 0.3		PAVEMENT					
762.5		APPARENT AGGREGATE BASE					
1.5 762.0 2.0		FILL: LEAN CLAY with GRAVEL (CL), and debris, brown, moist		3-4-4 (8) 4"			Bulk sample obtained 1.5-10 feet.
		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff to very stiff (GLACIAL TILL)		TW 24"	2	15	DD=120 pcf
			5				
				4-6-8 (14) 10"		25	LL=45, PL=17, PI=28
				3-6-7 (13) 10"			
			10				
				TW 24"		13	DD=123 pcf q _u =1.72 tsf
			15				
				5-6-9 (15) 12"			
			20				
				6-7-9 (16) 8"		14	Water not observed while drilling.
739.0 25.0		END OF BORING	25				
		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-27	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70568	LONGITUDE: -91.69083
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/20/23
DRILLER: AL/AC	LOGGED BY: A. Martin	SURFACE ELEVATION: 769.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Asphalt		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
768.8 0.3		PAVEMENT					
		APPARENT AGGREGATE BASE					
767.5 1.5		FILL: SANDY LEAN CLAY (CL), with debris, trace Gravel, brown, moist	5	10-9-7 (16) 0"			Bulk sample obtained 1.5-15 feet.
				4-3-4 (7) 4"			
763.0 6.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, stiff to very stiff (GLACIAL TILL)	10	4-5-5 (10) 6"	2.25	13	DD=125 pcf
				TW 20"			
			15	4-7-8 (15) 12"			
			20	4-7-8 (15) 14"		13	
744.0 25.0		Sand seam near 24 feet	25	5-8-9 (17) 6"			Water not observed while drilling.
		END OF BORING					
		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331				BORING: SB-29	
Geotechnical Evaluation				LOCATION:	
Clear Creek Trail				DATUM: WGS84	
Half Moon Avenue to F.W. Kent Park				LATITUDE: 41.70355	LONGITUDE: -91.69084
Johnson County, Iowa				START DATE: 02/20/23	END DATE: 02/20/23
DRILLER: DM/FA	LOGGED BY: A. Martin	SURFACE ELEVATION: 716.0 ft		RIG: 8504	METHOD: 3 1/4" HSA
SURFACING: Aggregate		WEATHER: Sunny & 40°			

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
715.7 0.3		APPARENT AGGREGATE BASE FILL: CLAYEY SAND with GRAVEL (SC), fine to coarse-grained, brown, dry		3-3-4 (7) 0"			
			5	3-3-4 (7) 4"			
709.0 7.0		Clay seam near 6 1/2 feet POORLY GRADED SAND (SP), fine-grained, brown, moist to wet, medium dense to dense (ALLUVIUM)		TW 12"	1	6	DD=106 pcf
			10	9-13-17 (30) 16"			
		Clay seam near 14 feet		10-16-20 (36) 16"			
			15				
				8-14-20 (34) 10"			
			20				
				10-14-18 (32) 10"			
691.0 25.0		END OF BORING	25				Water observed at 20.0 feet while drilling.
		Boring immediately backfilled					
			30				

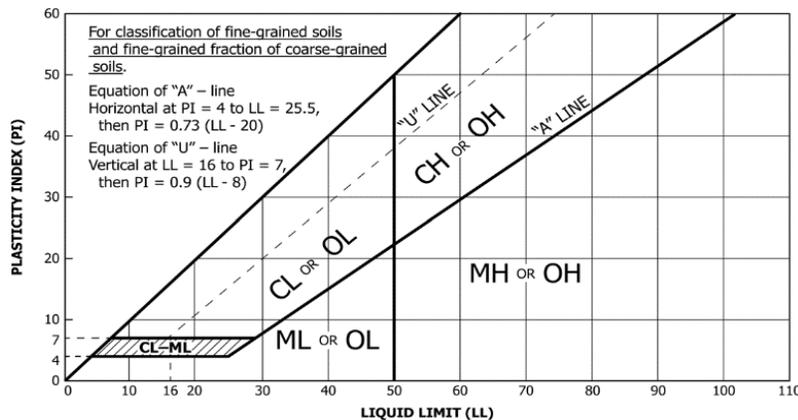
Project Number B2102331					BORING: SB-30		
Geotechnical Evaluation					LOCATION:		
Clear Creek Trail					DATUM: WGS84		
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.70328	LONGITUDE: -91.69084	
Johnson County, Iowa					START DATE: 02/20/23	END DATE: 02/20/23	
DRILLER: AL/AC	LOGGED BY: A. Martin		SURFACE ELEVATION: 714.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	
			SURFACING: Asphalt		WEATHER: Sunny & 40°		
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
713.8 0.3		PAVEMENT					
		APPARENT AGGREGATE BASE					
712.5 1.5		FILL: LEAN CLAY with GRAVEL (CL), dark brown, moist		5-7-6 (13) 6"	1.25	24	Bulk sample obtained 1.5-7 feet.
				TW 20"			
709.0 5.0		POORLY GRADED SAND (SP), fine-grained, brown to gray, moist to wet, medium dense (ALLUVIUM)	5	3-6-5 (11) 8"			Bulk sample obtained 7-20 feet.
707.0 7.0		POORLY GRADED SAND with CLAY (SP-SC), fine-grained, brown, moist to wet, medium dense (ALLUVIUM)		7-12-11 (23) 7"			
			10				
			15	6-9-11 (20) 7"		17	P200=10%
			20	4-6-9 (15) 6"			
			25	3-7-7 (14) 10"			
689.0 25.0		Clay seam near 24 feet					Water observed at 18.5 feet while drilling.
		END OF BORING					
		Boring immediately backfilled					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2102331					BORING: SB-31			
Geotechnical Evaluation					LOCATION:			
Clear Creek Trail					DATUM: WGS84			
Half Moon Avenue to F.W. Kent Park					LATITUDE: 41.70300	LONGITUDE: -91.69085		
Johnson County, Iowa					START DATE: 02/20/23	END DATE: 02/20/23		
DRILLER: AL/AC	LOGGED BY: A. Martin		SURFACE ELEVATION: 713.0 ft		RIG: 5501	METHOD: 3 1/4" HSA	SURFACING: Asphalt	WEATHER: Sunny & 40°
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
712.8 0.3		PAVEMENT						
711.5 1.5		APPARENT AGGREGATE BASE						
		FILL: LEAN CLAY (CL), trace organic, dark brown, moist		6-10-10 (20) 6"			Bulk sample obtained 1.5-7 feet.	
			5	TW 24"		22	DD=96 pcf	
707.0 6.0		LEAN CLAY (CL), brown, moist, medium (LOESS)		3-4-3 (7) 8"		23	LL=34, PL=19, PI=15 Bulk sample obtained 7-24 feet.	
704.5 8.5		POORLY GRADED SAND (SP), fine-grained, brown, moist to wet, medium dense (ALLUVIUM)		TW 0"				
			10					
				8-11-12 (23) 10"				
			15					
				3-5-9 (14) 8"				
			20					
689.5 23.5		LEAN CLAY with SAND (CL), dark gray, wet to moist, medium (ALLUVIUM)		4-4-4 (8) 12"		41		
			25					
683.0 30.0		With Sand seam near 29 feet		3-4-4 (8) 11"				
		END OF BORING	30				Water observed at 13.5 feet while drilling.	
		Boring immediately backfilled						

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)	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E
		Gravels with Fines (More than 12% fines ^C)	$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3^D$)	GP	Poorly graded gravel ^E
			Fines classify as ML or MH Fines Classify as CL or CH	GM	Silty gravel ^{EFG}
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H)	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I
		Sands with Fines (More than 12% fines ^H)	$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3^D$)	SP	Poorly graded sand ^I
			Fines classify as ML or MH Fines classify as CL or CH	SM	Silty sand ^{FGI}
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{KLM}
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{KLM}
			PI plots below "A" line	MH	Elastic silt ^{KLM}
	Organic	Liquid Limit – oven dried Liquid Limit – not dried < 0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMQ}	
		Liquid Limit – oven dried Liquid Limit – not dried < 0.75	OH	Organic clay ^{KLMN} Organic silt ^{KLMQ}	
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. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
- E. If soil contains $\geq 15\%$ sand, add "with sand" to group name.
- F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
- G. If fines are organic, add "with organic fines" to group name.
- H. 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
- I. If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
- J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
- K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
- L. If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
- M. If soil contains $\geq 30\%$ 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.



DD Dry density, pcf	q_p Pocket penetrometer strength, tsf
WD Wet density, pcf	q_u Unconfined compression test, tsf
P200 % Passing #200 sieve	LL Liquid limit
MC Moisture content, %	PL Plastic limit
OC Organic content, %	PI Plasticity index

Particle Size Identification

- Boulders..... over 12"
- Cobbles..... 3" to 12"
- Gravel
Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
- Sand
Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
- Silt..... No. 200 (0.075 mm) to .005 mm
- Clay..... < .005 mm

Relative Proportions^{L-M}

- trace..... 0 to 5%
- little..... 6 to 14%
- with..... $\geq 15\%$

Inclusion Thicknesses

- lens..... 0 to 1/8"
- seam..... 1/8" to 1"
- layer..... over 1"

Apparent Relative Density of Cohesionless Soils

- Very loose 0 to 4 BPF
- Loose 5 to 10 BPF
- Medium dense..... 11 to 30 BPF
- Dense..... 31 to 50 BPF
- Very dense..... over 50 BPF

Consistency of Cohesive Soils Blows Per Foot Approximate Unconfined Compressive Strength

- Very soft..... 0 to 1 BPF..... < 0.25 tsf
- Soft..... 2 to 4 BPF..... 0.25 to 0.5 tsf
- Medium..... 5 to 8 BPF..... 0.5 to 1 tsf
- Stiff..... 9 to 15 BPF..... 1 to 2 tsf
- Very Stiff..... 16 to 30 BPF..... 2 to 4 tsf
- Hard..... over 30 BPF..... > 4 tsf

Moisture Content:

- Dry:** Absence of moisture, dusty, dry to the touch.
- Moist:** Damp but no visible water.
- Wet:** Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

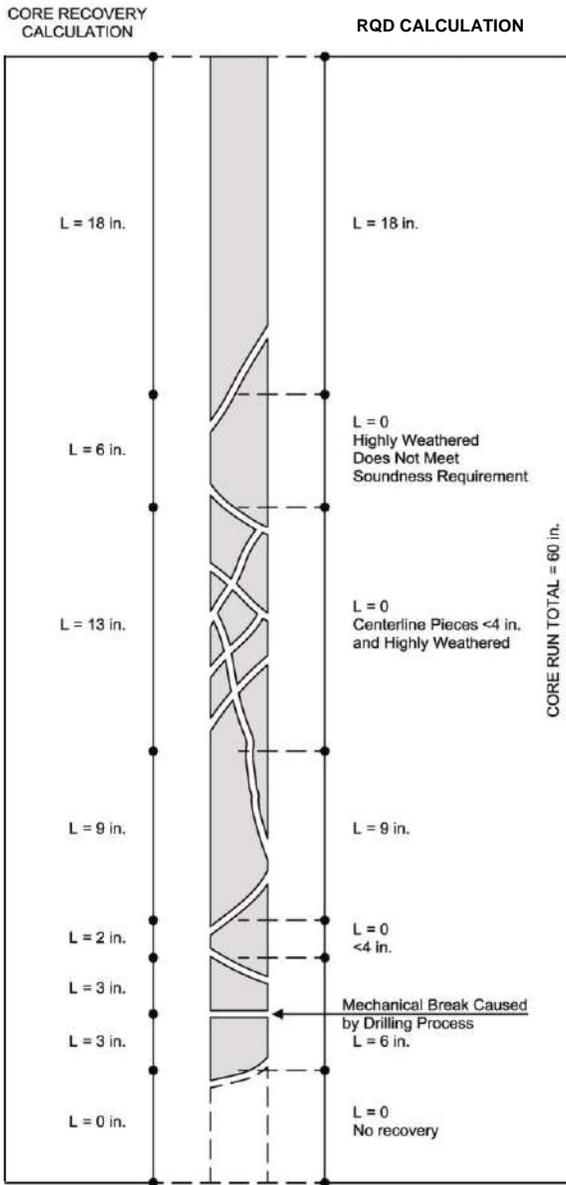
WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (), at the end of drilling (), or at some time after drilling ().

Sample Symbols

Standard Penetration Test	Rock Core
Modified California (MC)	Thinwall (TW)/Shelby Tube (SH)
Auger	Texas Cone Penetrometer
Grab Sample	Dynamic Cone Penetrometer



Weathering

Unweathered: No evidence of chemical or mechanical alteration.

Slightly weathered: Slight discoloration on surface, slight alteration along discontinuities, less than 10% of rock volume altered.

Moderately Weathered: Discoloration evident, surface pitted and altered with alteration penetrating well below rock surfaces, weathering halos evident, 10% to 50% of the rock altered.

Highly Weathered: Entire mass discolored, alteration pervading nearly all of the rock, with some pockets of slightly weathered rock noticeable, some mineral leached away.

Decomposed: Rock reduced to a soil consistency with relict rock texture, generally molded and crumbled by hand.

Hardness

<i>Very soft:</i>	Can be deformed by hand
<i>Soft:</i>	Can be scratched with a fingernail
<i>Moderately hard:</i>	Can be scratched easily with a knife
<i>Hard:</i>	Can be scratched with difficulty with a knife
<i>Very hard:</i>	Cannot be scratched with a knife

Texture

<i>Sedimentary Rocks:</i>	<u>Grain Size</u>
Coarse grained	2 – 5 mm
Medium grained	0.4 – 2 mm
Fine grained	0.1 – 0.4 mm
Very fine grained	< 0.1 mm

Igneous and Metamorphic Rocks:

Coarse grained	5 mm
Medium grained	1 – 5 mm
Fine grained	0.1 – 1 mm
Aphanitic	< 0.1 mm

Example Calculations

Core Recovery, CR = $\frac{\text{Total length of rock recovered}}{\text{Total core run length}}$

Example: $CR = \frac{(18 + 6 + 13 + 9 + 2 + 3 + 3)}{(60)}$

CR = 90%

RQD = $\frac{\text{Sum of sound pieces 4 inches or larger}}{\text{Total core run length}}$

<u>RQD Percent</u>	<u>Rock Quality</u>
< 25	very poor
25 < 50	poor
50 < 75	fair
75 < 90	good
90 < 100	excellent

Example: $RQD = \frac{(18 + 9 + 6)}{(60)}$

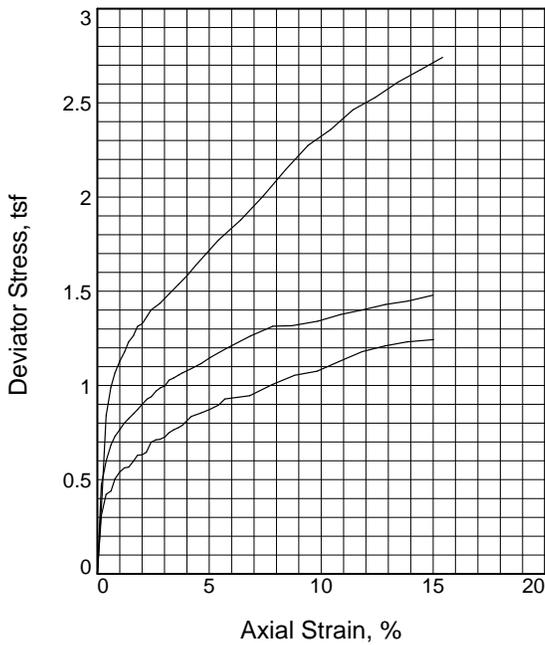
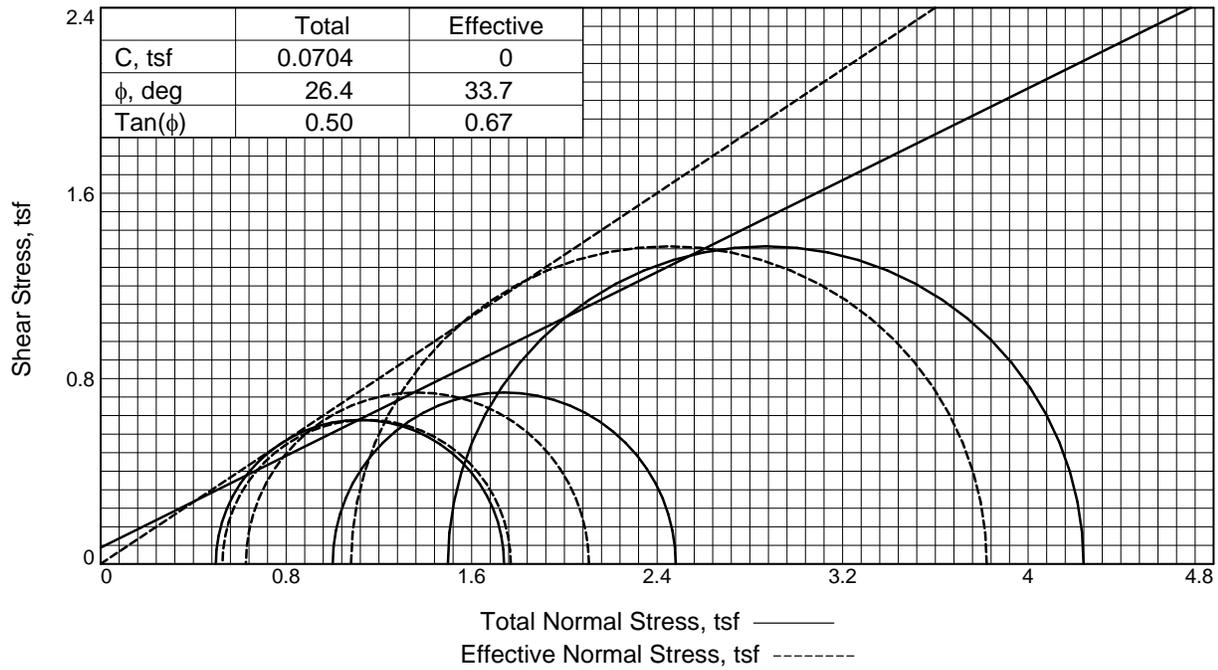
RQD = 55%

Thickness of Bedding

<i>Massive:</i>	3 ft. thick or greater
<i>Thick bedded:</i>	1 to 3 ft. thick
<i>Medium bedded:</i>	4 in. to 1 ft. thick
<i>Thin bedded:</i>	4 in. thick or less

Degree of Fracturing (Jointing)

<i>Unfractured:</i>	Fracture spacing 6 ft. or more
<i>Slightly fractured:</i>	Fracture spacing 2 to 6 ft.
<i>Moderately fractured:</i>	Fracture spacing 8 in. to 2 ft.
<i>Highly fractured:</i>	Fracture spacing 2 in. to 8 in.
<i>Intensely fractured:</i>	Fracture spacing 2 in. or less



Sample No.	1	2	3	
Initial	Water Content, %	29.1	29.9	28.7
	Dry Density, pcf	95.1	95.9	98.0
	Saturation, %	95.1	99.8	99.8
	Void Ratio	0.8717	0.8551	0.8220
	Diameter, in.	1.400	1.407	1.409
	Height, in.	2.800	2.807	2.805
At Test	Water Content, %	29.9	28.2	28.0
	Dry Density, pcf	96.1	98.6	99.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.8517	0.8039	0.8006
	Diameter, in.	1.395	1.393	1.403
	Height, in.	2.790	2.781	2.794
Strain rate, %/min.				
Back Pressure, tsf	6.631	6.127	5.630	
Cell Pressure, tsf	7.128	7.128	7.128	
Fail. Stress, tsf				
	Total Pore Pr., tsf	6.602	6.502	6.048
Ult. Stress, tsf				
	Total Pore Pr., tsf	6.602	6.502	6.048
$\bar{\sigma}_1$ Failure, tsf	1.243	1.479	2.742	
$\bar{\sigma}_3$ Failure, tsf	1.769	2.106	3.822	
	0.526	0.626	1.080	

Type of Test:

CU with Pore Pressures

Sample Type: Shelby Tube

Description: Lean Clay (CL), brown

Assumed Specific Gravity= 2.85

Remarks: CU Triax ASTM D 4767

Client:

Project: Clear Creek Trail

Half Moon Avenue to F.W. Kent Park, IA

Source of Sample: SB-3

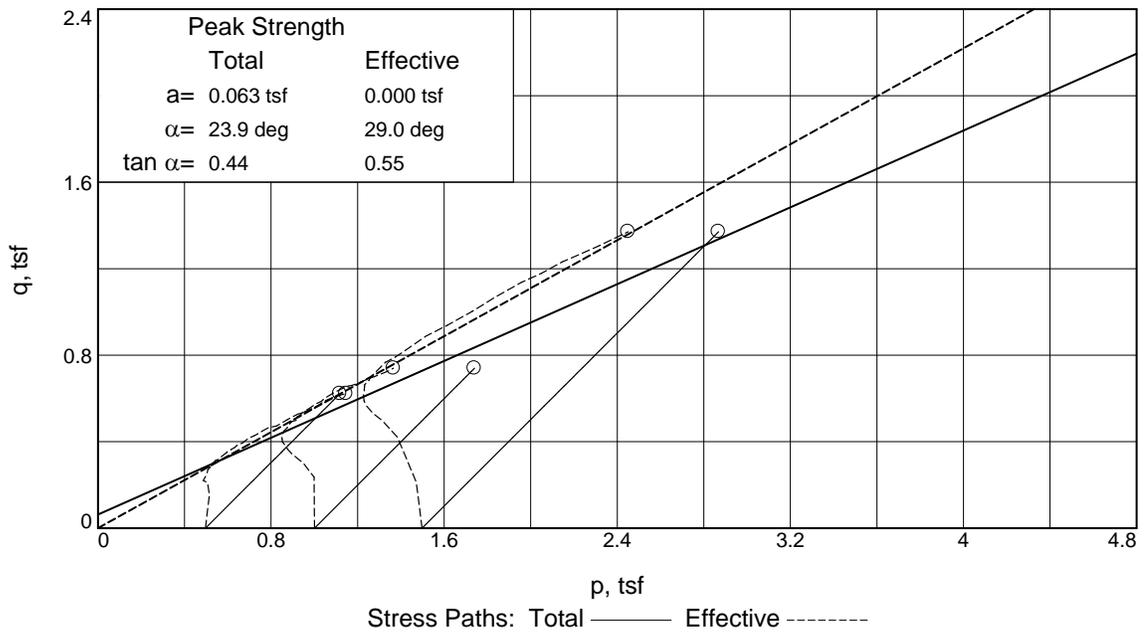
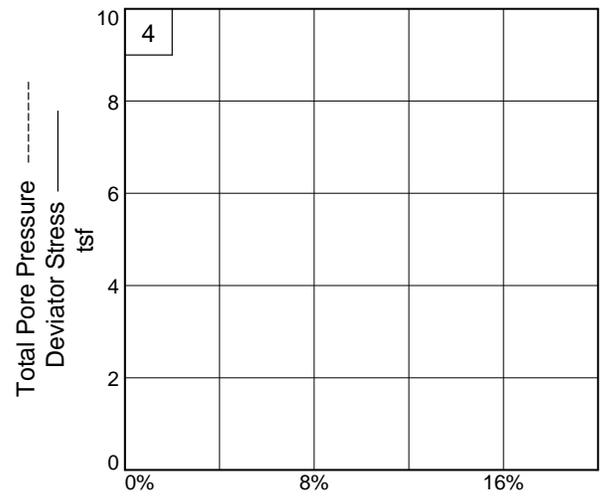
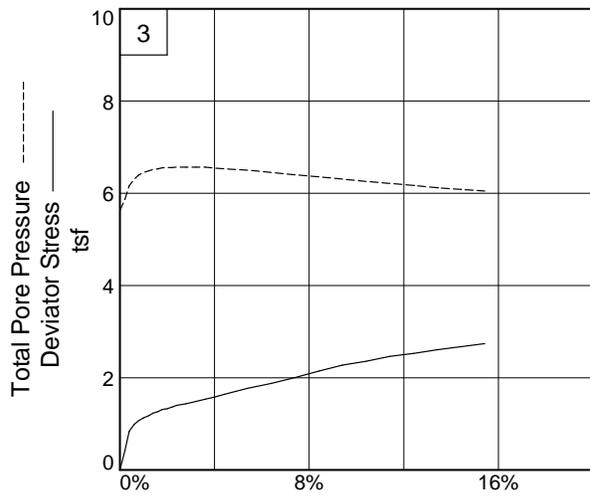
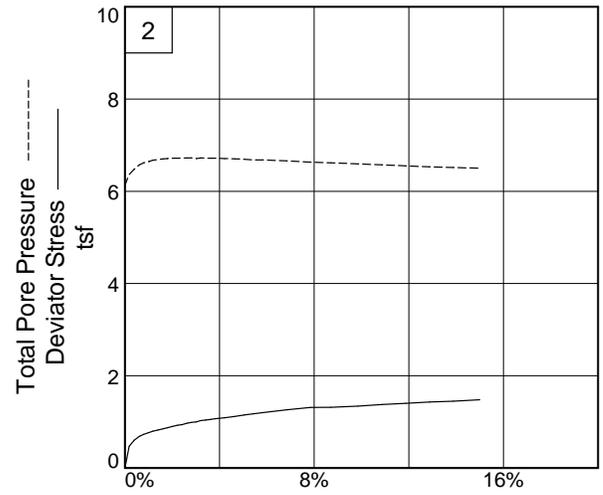
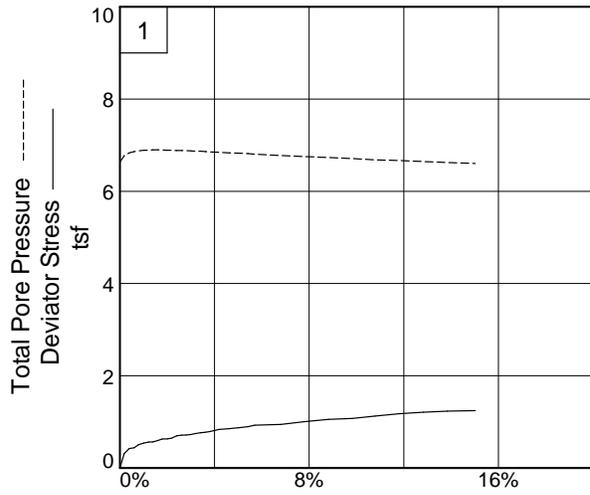
Depth: 8-10'

Proj. No.: B2102331.00

Date Sampled:

BRAUNSM
INTERTEC

Figure _____



Client:

Project: Clear Creek Trail

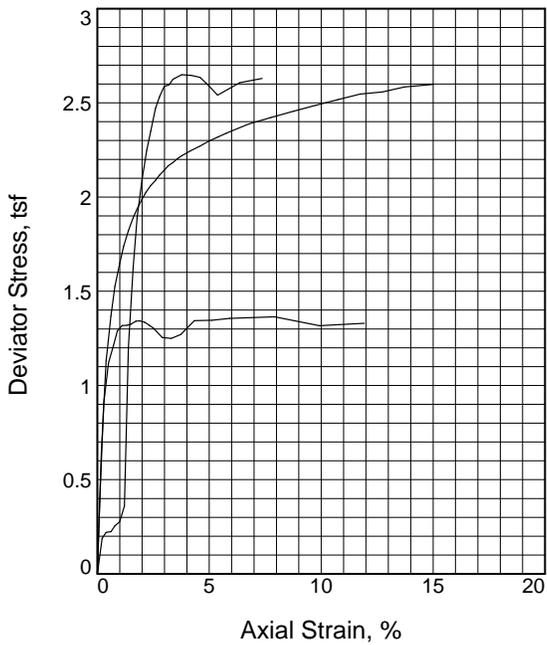
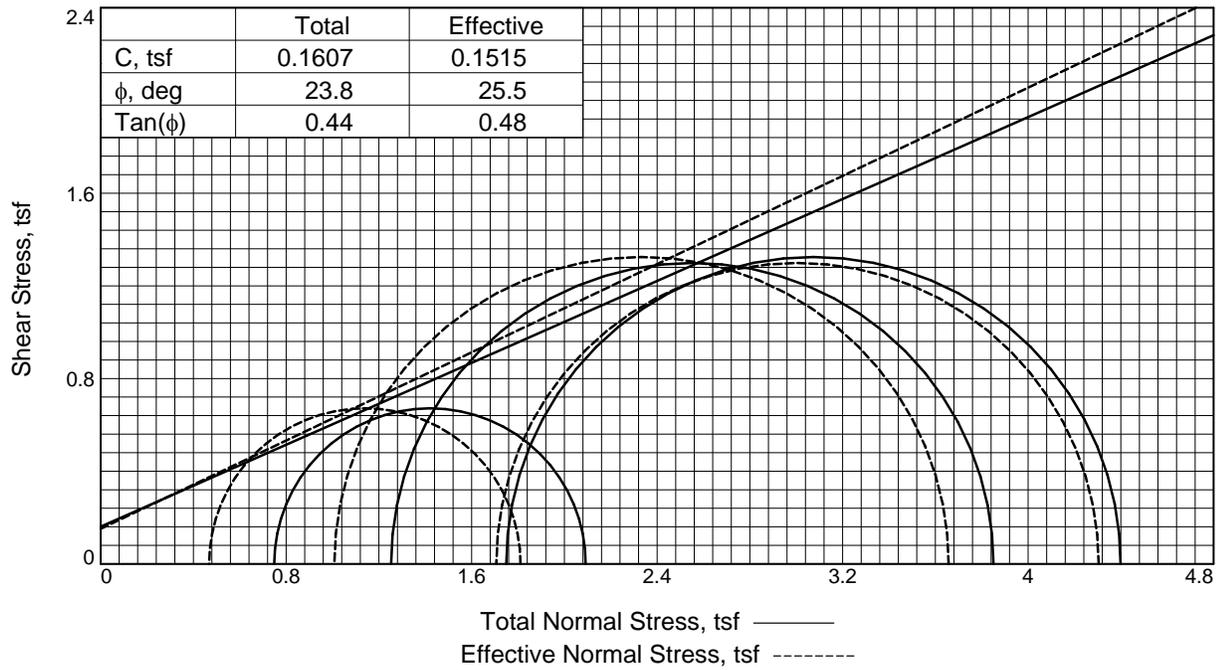
Source of Sample: SB-3

Depth: 8-10'

Project No.: B2102331.00

Figure _____

Braun Intertec



Sample No.	1	2	3	
Initial	Water Content, %	20.8	18.8	18.8
	Dry Density, pcf	104.9	110.9	108.6
	Saturation, %	92.4	97.5	92.1
	Void Ratio	0.6075	0.5204	0.5519
	Diameter, in.	1.425	1.407	1.433
At Test	Height, in.	2.794	2.812	2.825
	Water Content, %	22.4	19.3	19.6
	Dry Density, pcf	105.0	110.9	110.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.6057	0.5204	0.5305
Strain rate, %/min.	Diameter, in.	1.424	1.407	1.426
	Height, in.	2.793	2.812	2.812
	Back Pressure, tsf	6.379	5.875	5.378
	Cell Pressure, tsf	7.128	7.128	7.128
	Fail. Stress, tsf	1.343	2.598	2.649
Total Pore Pr., tsf	Total Pore Pr., tsf	6.660	5.422	6.120
	Ult. Stress, tsf	1.250	2.598	2.541
Total Pore Pr., tsf	Total Pore Pr., tsf	6.581	5.422	6.012
	$\bar{\sigma}_1$ Failure, tsf	1.811	4.304	3.657
$\bar{\sigma}_3$ Failure, tsf	0.468	1.706	1.008	

Type of Test:

CU with Pore Pressures

Sample Type: Shelby Tube

Description: Lean Clay (CL), brown

Assumed Specific Gravity= 2.70

Remarks: CU Triax ASTM D 4767

Client:

Project: Clear Creek Trail

Half Moon Avenue to F.W. Kent Park, IA

Source of Sample: SB-4

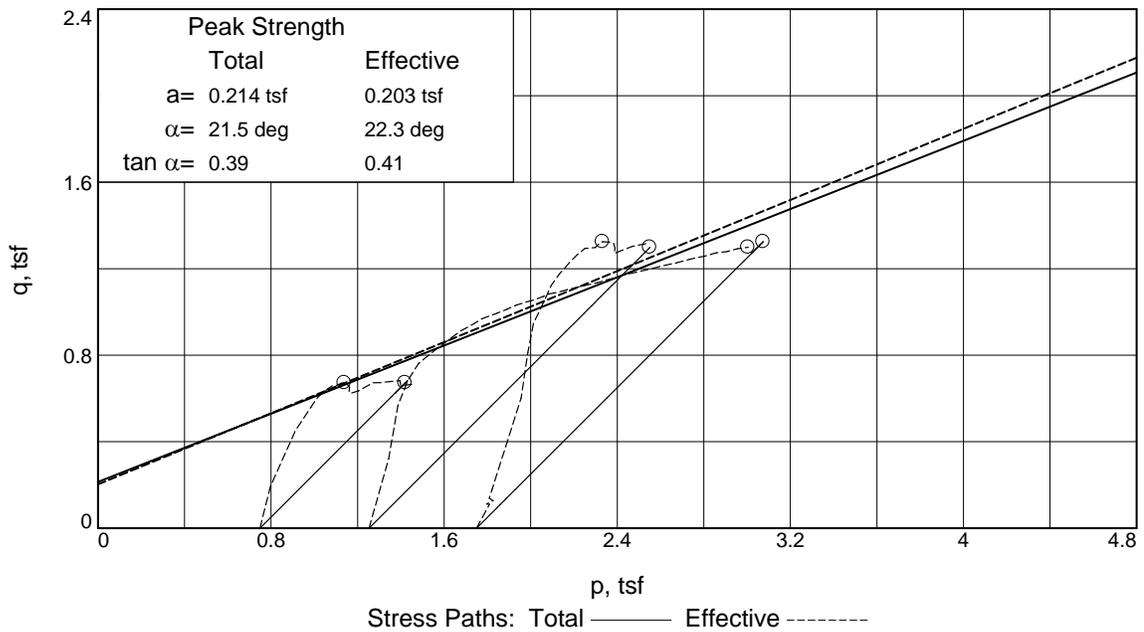
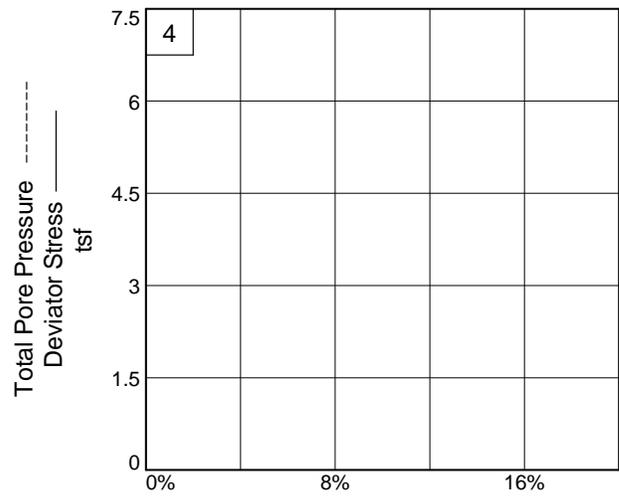
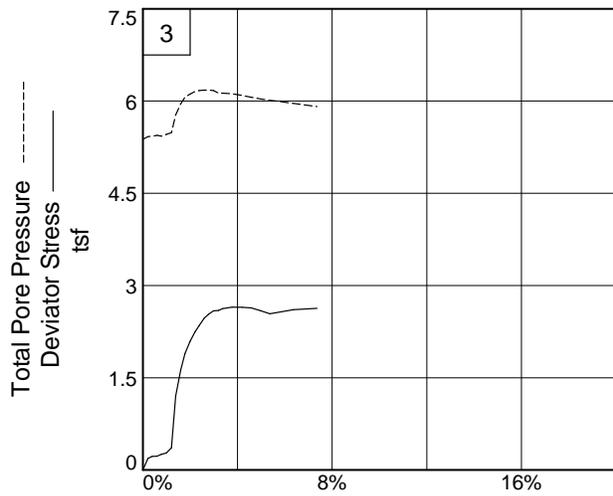
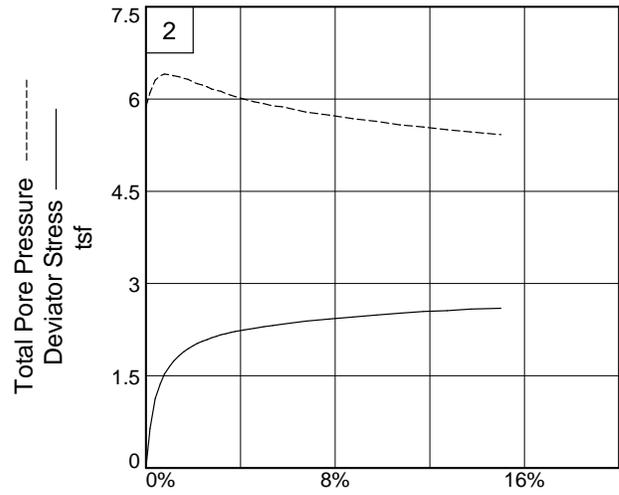
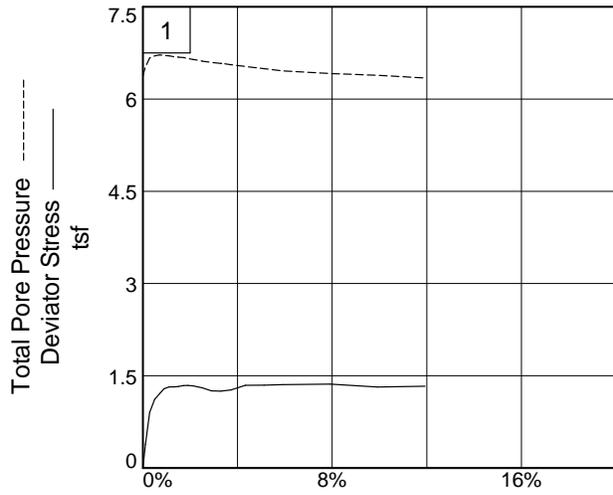
Depth: 13-15'

Proj. No.: B2102331.00

Date Sampled:

BRAUNSM
INTERTEC

Figure _____



Client:

Project: Clear Creek Trail

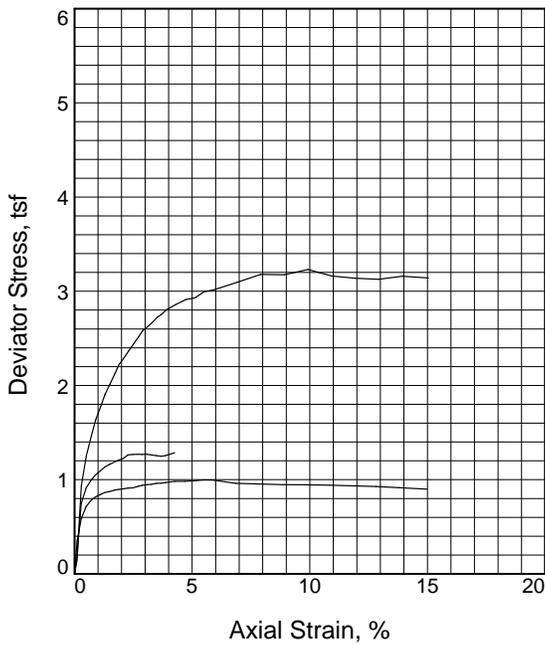
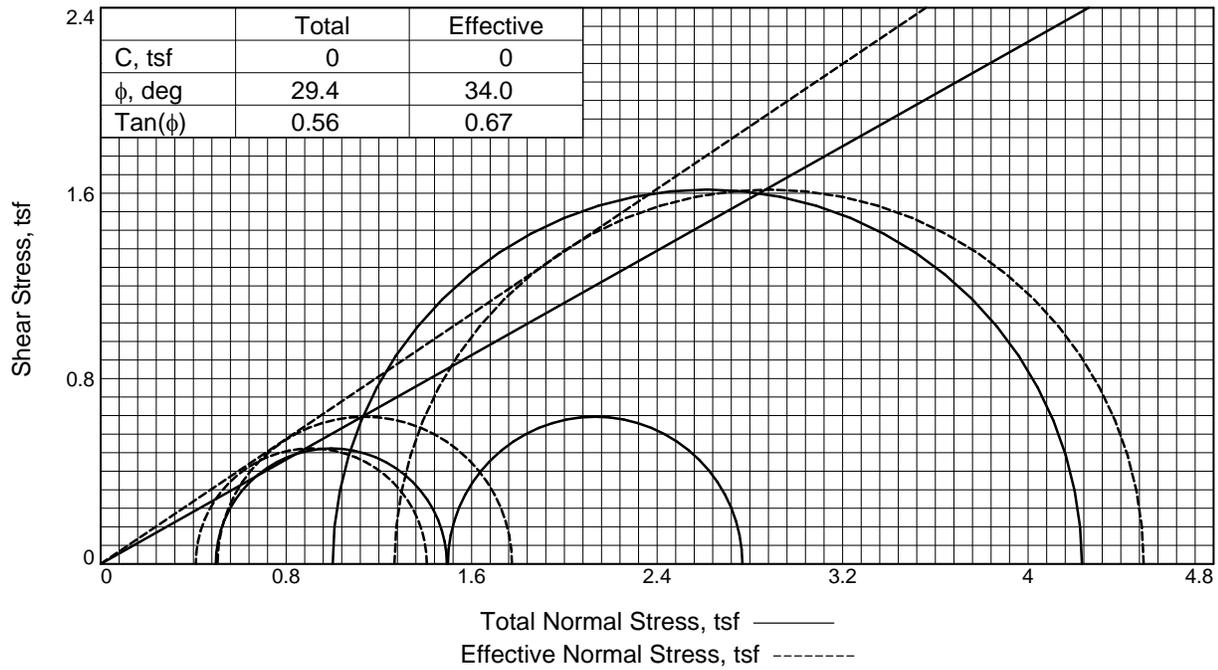
Source of Sample: SB-4

Depth: 13-15'

Project No.: B2102331.00

Figure _____

Braun Intertec



Sample No.	1	2	3	
Initial	Water Content, %	18.2	16.6	24.0
	Dry Density, pcf	96.3	104.6	96.3
	Saturation, %	65.4	73.3	86.2
	Void Ratio	0.7505	0.6113	0.7505
	Diameter, in.	1.430	1.410	1.415
	Height, in.	2.824	2.794	2.841
At Test	Water Content, %	27.4	22.5	26.4
	Dry Density, pcf	96.9	104.8	98.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7388	0.6085	0.7132
	Diameter, in.	1.427	1.409	1.405
	Height, in.	2.817	2.792	2.821
Strain rate, %/min.				
Back Pressure, tsf	6.631	6.127	5.630	
Cell Pressure, tsf	7.128	7.128	7.128	
Fail. Stress, tsf				
	Total Pore Pr., tsf	6.718	5.861	6.624
Ult. Stress, tsf				
	Total Pore Pr., tsf	6.703	5.846	6.631
$\bar{\sigma}_1$ Failure, tsf	1.407	4.498	1.774	
$\bar{\sigma}_3$ Failure, tsf	0.410	1.267	0.504	

Type of Test:

CU with Pore Pressures

Sample Type: Shelby Tube

Description: Lean Clay (CL), brown

Assumed Specific Gravity= 2.70

Remarks: CU Triax ASTM D 4767

Client:

Project: Clear Creek Trail

Half Moon Avenue to F.W. Kent Park, IA

Source of Sample: SB-15

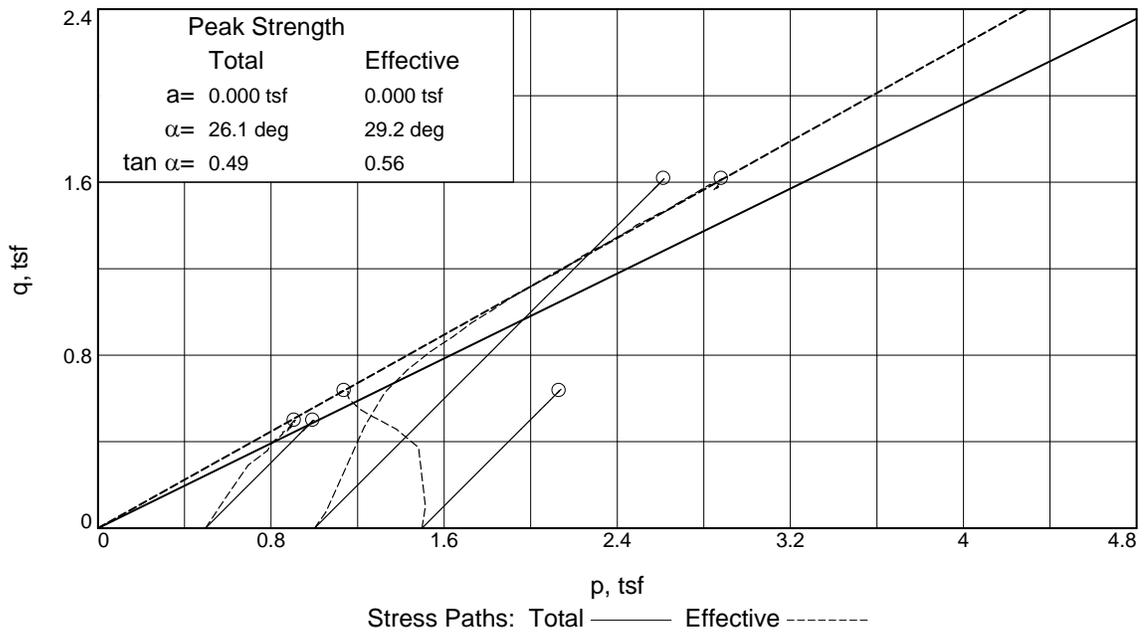
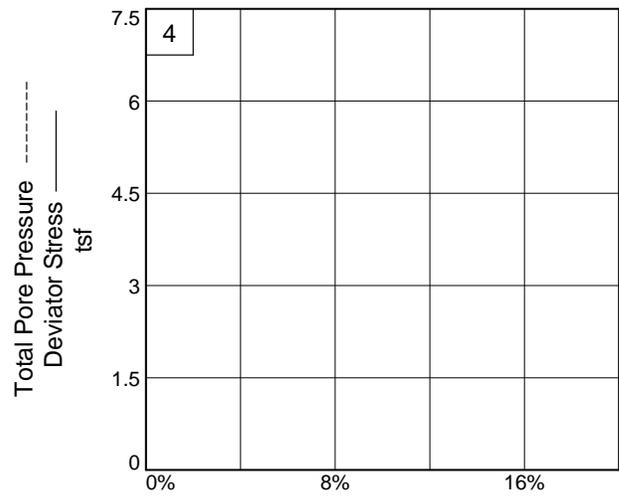
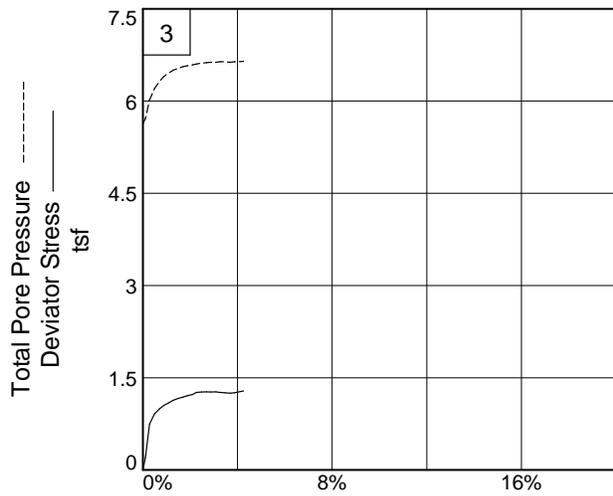
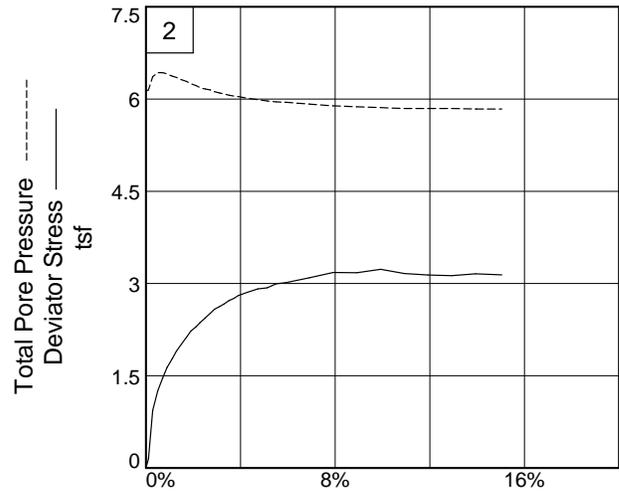
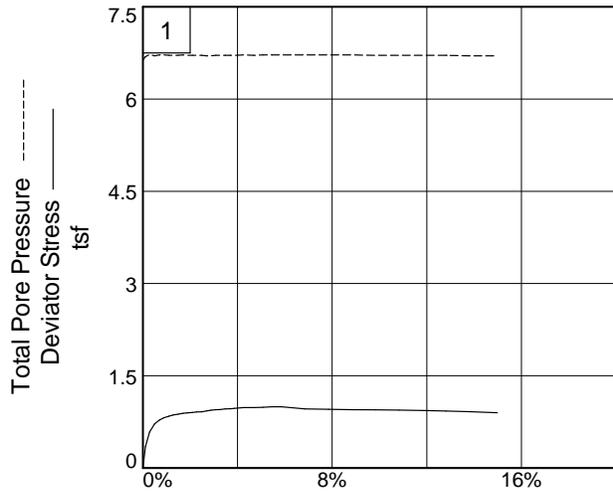
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Proj. No.: B2102331.00

Date Sampled:

BRAUNSM
INTERTEC

Figure _____



Client:

Project: Clear Creek Trail

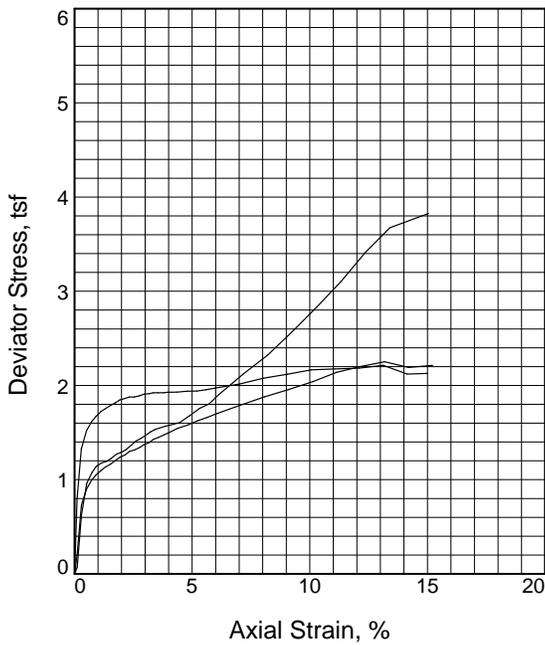
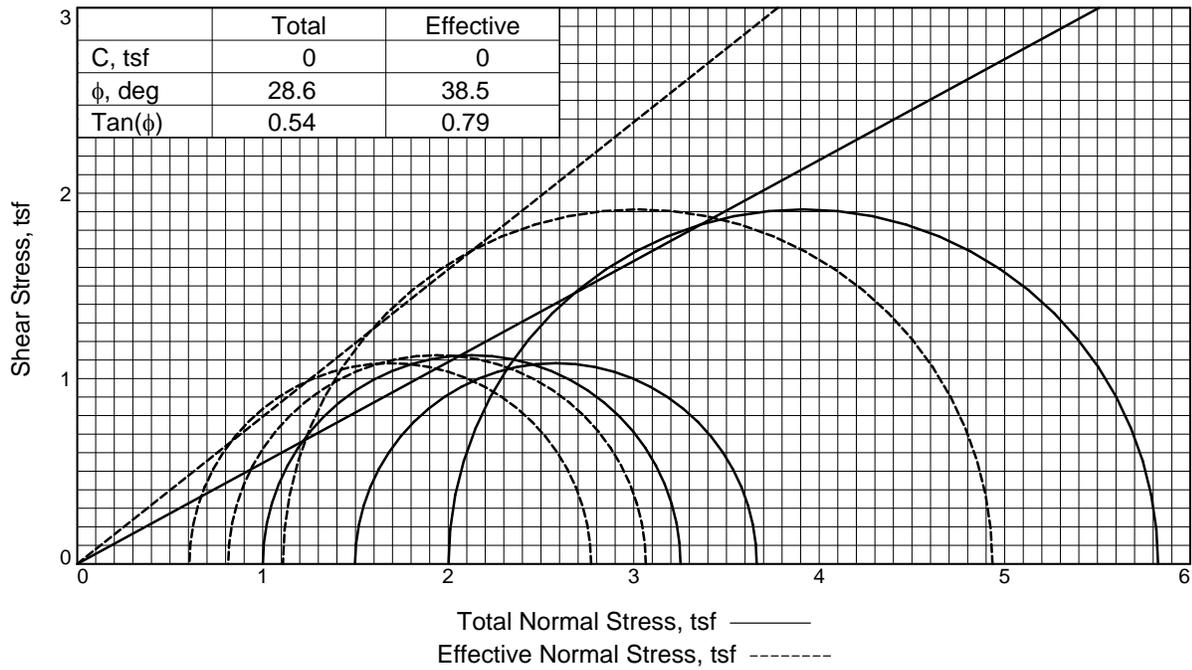
Source of Sample: SB-15

Depth: 8-10'

Project No.: B2102331.00

Figure _____

Braun Intertec



Sample No.		1	2	3
Initial	Water Content, %	25.4	25.7	25.9
	Dry Density, pcf	101.6	102.6	104.6
	Saturation, %	99.8	99.8	99.7
	Void Ratio	0.7079	0.7340	0.7727
	Diameter, in.	1.400	1.404	1.440
	Height, in.	2.806	2.799	2.826
At Test	Water Content, %	21.1	22.7	17.8
	Dry Density, pcf	109.3	108.1	121.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.5875	0.6458	0.5291
	Diameter, in.	1.366	1.380	1.370
	Height, in.	2.739	2.751	2.692
Strain rate, %/min.				
Back Pressure, tsf		6.127	5.630	5.126
Cell Pressure, tsf		7.128	7.128	7.128
Fail. Stress, tsf		2.252	2.165	3.825
Total Pore Pr., tsf		6.314	6.523	6.019
Ult. Stress, tsf		2.192	2.175	3.825
Total Pore Pr., tsf		6.286	6.502	6.019
$\bar{\sigma}_1$ Failure, tsf		3.065	2.770	4.934
$\bar{\sigma}_3$ Failure, tsf		0.814	0.605	1.109

Type of Test:

CU with Pore Pressures

Sample Type: Shelby Tube

Description: Lean Clay (CL), brown

Assumed Specific Gravity= 2.78

Remarks: CU Triax ASTM D 4767

Client:

Project: Clear Creek Trail

Half Moon Avenue to F.W. Kent Park, IA

Source of Sample: SB-17

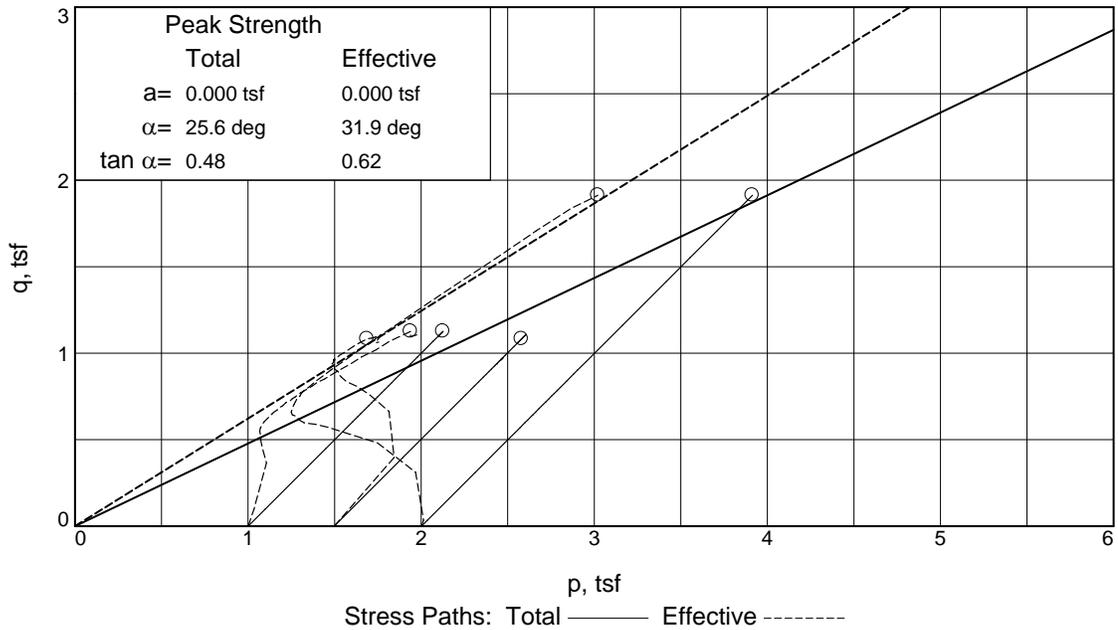
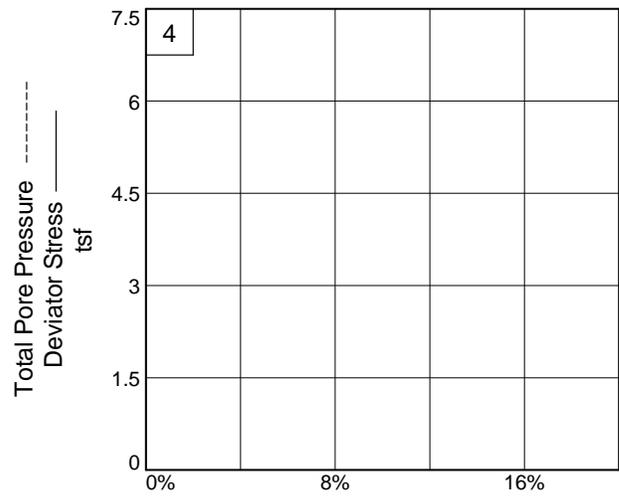
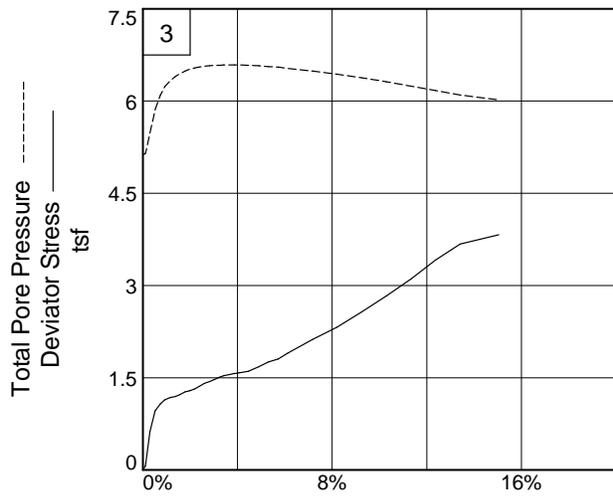
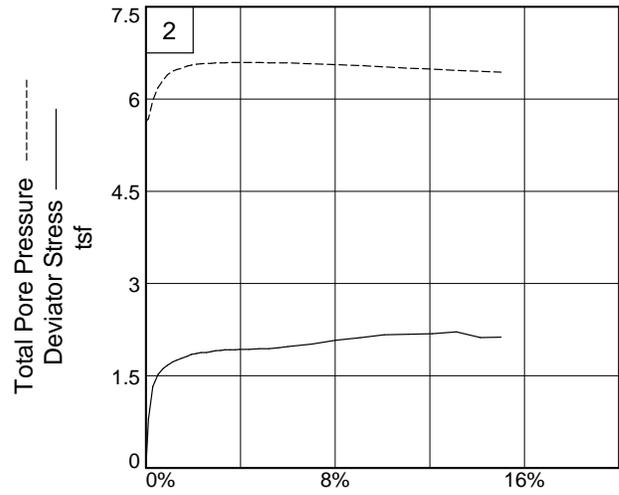
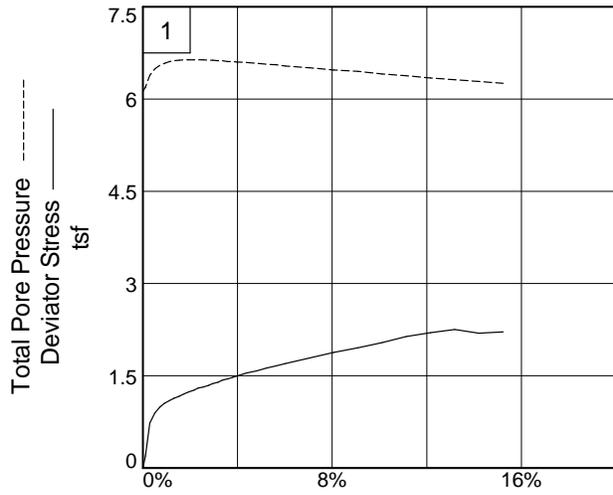
Depth: 18-20'

Proj. No.: B2102331.00

Date Sampled:

BRAUNSM
INTERTEC

Figure _____



Client:

Project: Clear Creek Trail

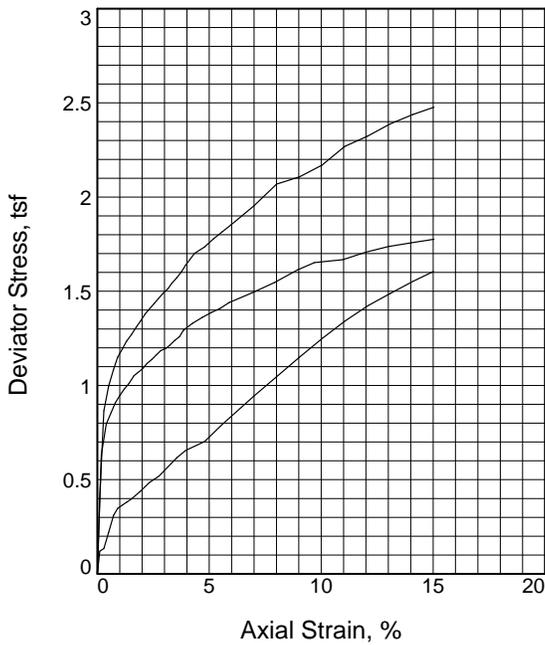
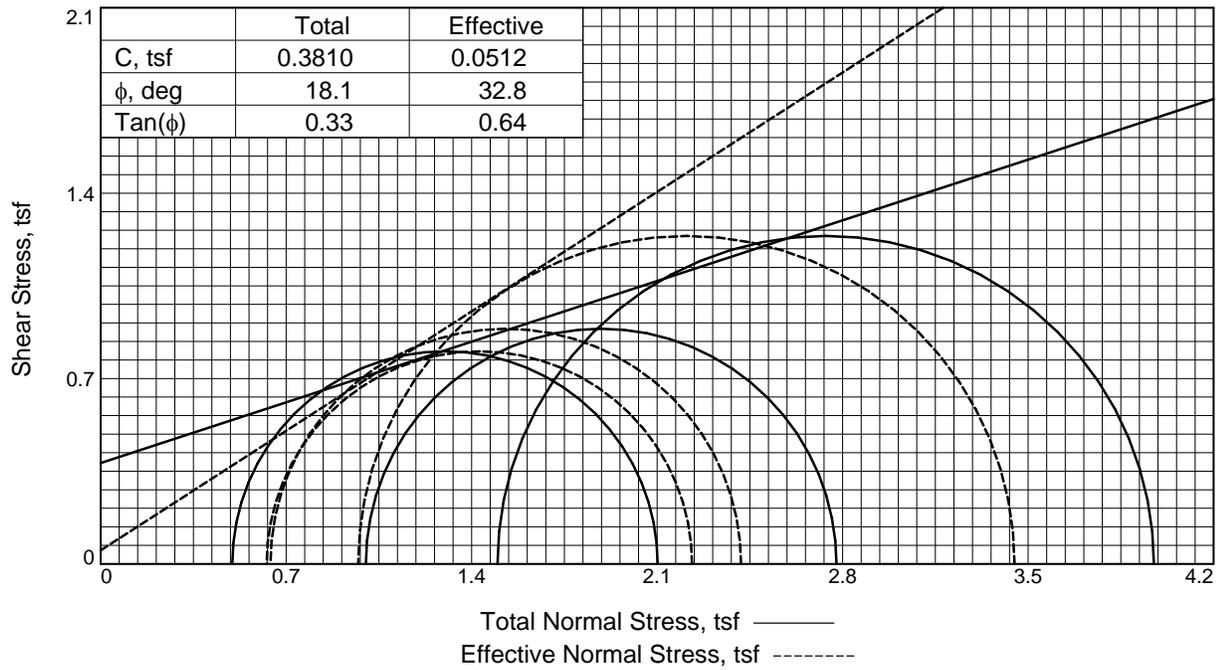
Source of Sample: SB-17

Depth: 18-20'

Project No.: B2102331.00

Figure _____

Braun Intertec



Sample No.	1	2	3	
Initial	Water Content, %	30.7	30.4	31.1
	Dry Density, pcf	94.9	93.5	93.7
	Saturation, %	100.0	95.9	98.7
	Void Ratio	0.8752	0.9034	0.8987
	Diameter, in.	1.424	1.400	1.405
	Height, in.	2.842	2.800	2.804
At Test	Water Content, %	24.9	28.4	28.4
	Dry Density, pcf	104.0	98.4	98.3
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7103	0.8086	0.8102
	Diameter, in.	1.381	1.376	1.383
	Height, in.	2.757	2.753	2.760
Strain rate, %/min.				
Back Pressure, tsf	6.631	6.127	5.630	
Cell Pressure, tsf	7.128	7.128	7.128	
Fail. Stress, tsf				
	Total Pore Pr., tsf	6.502	6.487	6.156
Ult. Stress, tsf				
	Total Pore Pr., tsf	6.502	6.487	6.156
$\bar{\sigma}_1$ Failure, tsf	2.232	2.417	3.449	
$\bar{\sigma}_3$ Failure, tsf	0.626	0.641	0.972	

Type of Test:

CU with Pore Pressures

Sample Type: Shelby Tube

Description: Lean Clay (CL), brown

Assumed Specific Gravity= 2.85

Remarks: CU Triax ASTM D 4767

Client:

Project: Clear Creek Trail

Half Moon Avenue to F.W. Kent Park, IA

Source of Sample: SB-1

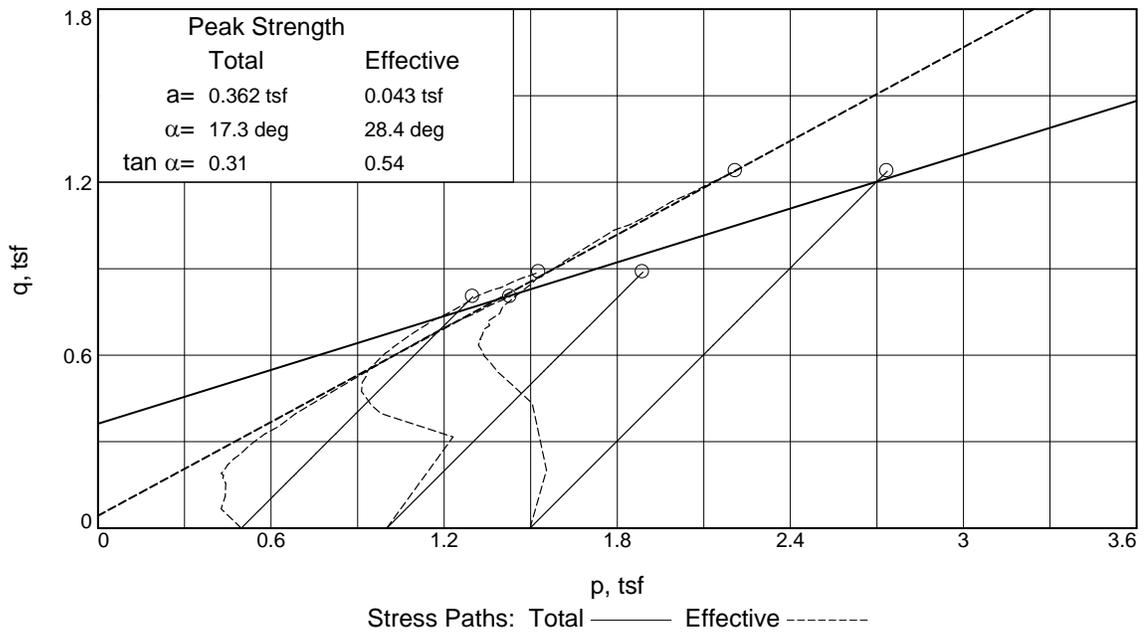
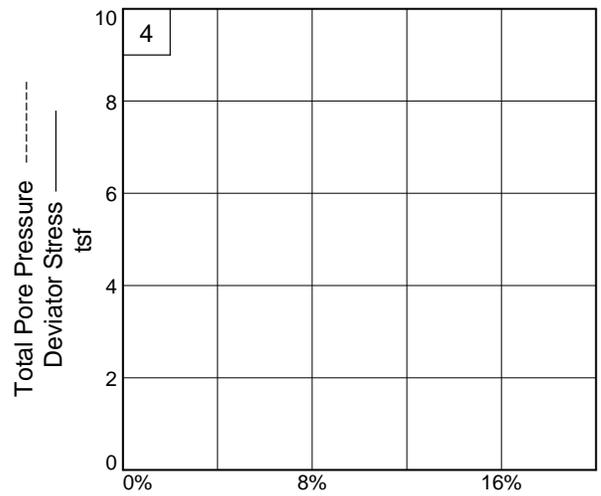
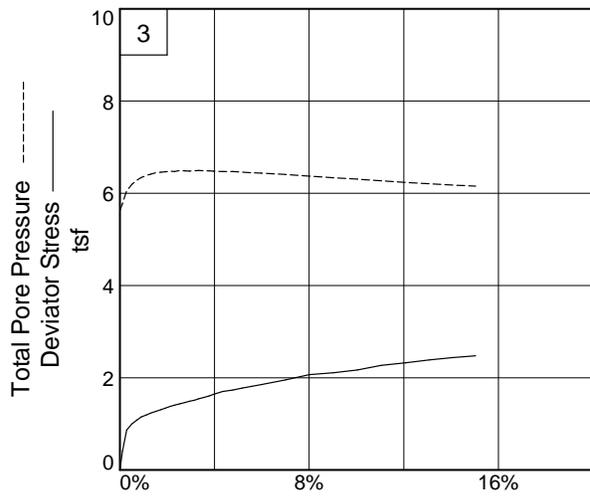
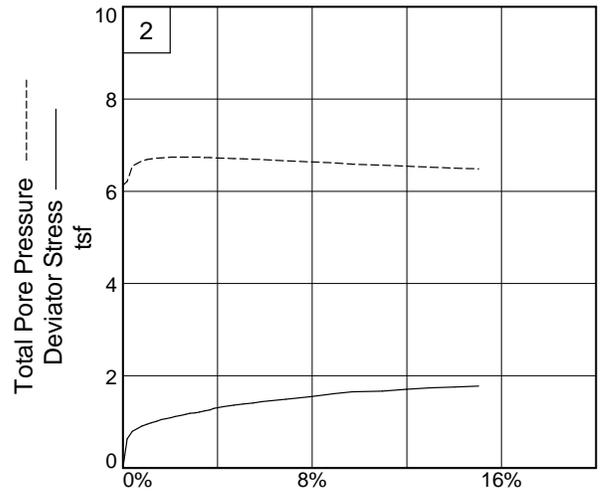
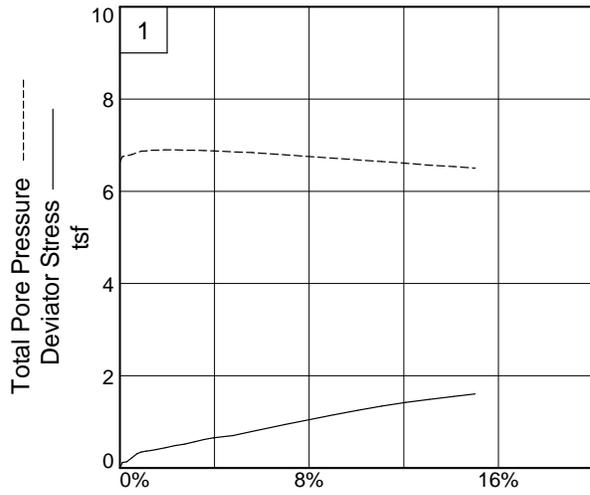
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Proj. No.: B2102331.00

Date Sampled:

BRAUNSM
INTERTEC

Figure _____



Client:

Project: Clear Creek Trail

Source of Sample: SB-1

Depth: 8-10'

Project No.: B2102331.00

Figure _____

Braun Intertec

Appendix B

Piles Resistances for Clear Creek Trail - West Bridge

Boring	Substructure	Soil Classification	Soil Type	Top Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	H-Pile Unit Resistance for Skin Friction (kips/ft)			H-Pile Unit Resistance for End Bearing (ksi)		
							10-inch	12-inch	14-inch	10-inch	12-inch	14-inch
							SB-08	West Abutment (Bottom of Abutment Footing at ~712 feet)*	Soft to Medium Silt, Alluvium	Cohesive	712.0	681.5
	Medium to Stiff Lean Clay, Alluvium	Cohesive	681.5	656.5	25.0	2.0	2.4		2.8	–	–	–
	Dense to V. Dense Sand, Glacial Outwash	Non-cohesive	656.5	631.5	25.0	4.0	4.8		5.6	–	–	–
	Moderately Hard, Shale	–	631.5	621.5	10.0	–	–		–	18	18	18
SB-09	East Abutment (Bottom of Abutment Footing at ~712 feet)*	V. Soft to Soft Lean Clay and Silt, Alluvium	Cohesive	712.0	691.0	21.0	0.8	1.2	1.2	–	–	–
		Medium Lean Clay, Alluvium	Cohesive	691.0	680.0	11.0	1.2	1.6	2.0	–	–	–
		Medium to Stiff Lean Clay, Alluvium	Cohesive	680.0	671.0	9.0	2.0	2.4	2.8	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	671.0	665.5	5.5	2.8	3.2	3.6	–	–	–
		Medium Sandy Lean Clay, Glacial Till	Cohesive	665.5	654.5	11.0	2.0	2.4	2.8	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	654.5	640.5	14.0	2.8	3.2	3.6	–	–	–
		Dense to V. Dense Sand, Glacial Outwash	Non-cohesive	640.5	625.5	15.0	4.0	4.8	5.6	3	3	3
		Moderately Hard, Shale	–	625.5	615.5	10.0	–	–	–	18	18	18

*Bottom of abutment footing as provided on the preliminary plans



Piles Resistances for Clear Creek Middle Bridge

Boring	Substructure	Soil Classification	Soil Type	Top Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	H-Pile Unit Resistance for Skin Friction (kips/ft)			H-Pile Unit Resistance for End Bearing (ksi)		
							10-inch	12-inch	14-inch	10-inch	12-inch	14-inch
SB-10	West Abutment (Bottom of Abutment Footing at ~709 feet)*	New Fill	–	709.0	707.0	2.0	–	–	–	–	–	–
		Loose to M. Dense Sand, Alluvium	Non-cohesive	707.0	697.0	10.0	1.2	1.2	1.6	–	–	–
		Medium Silt, Alluvium	Cohesive	697.0	674.0	23.0	1.2	1.6	2.0	–	–	–
		Medium Dense Sand, Alluvium	Non-cohesive	674.0	669.5	4.5	2.8	3.2	3.6	–	–	–
		Stiff Lean Clay, Alluvium	Cohesive	669.5	664.0	5.5	2.0	2.4	2.8	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	664.0	635.0	29.0	2.8	3.2	3.6	–	–	–
		Very Dense Sand, Glacial Outwash	Non-cohesive	635.0	629.0	6.0	4.0	4.8	5.6	–	–	–
		Moderately Hard, Shale	–	629.0	624.0	5.0	–	–	–	12	12	12
Moderately Hard, Shale	–	624.0	619.5	4.5	–	–	–	18	18	18		
SB-11	East Abutment (Bottom of Abutment Footing at ~708 feet)*	New Fill	–	709.0	707.0	2.0	–	–	–	–	–	–
		Soft to Medium Lean Clay, Alluvium	Cohesive	707.0	698.0	9.0	0.8	1.2	1.2	–	–	–
		Medium Silt, Alluvium	Cohesive	698.0	674.0	24.0	1.2	1.6	1.6	–	–	–
		Medium Dense Clayey Sand, Alluvium	Non-cohesive	674.0	669.5	4.5	1.6	2.0	2.8	–	–	–
		Stiff Lean Clay, Alluvium	Cohesive	669.5	664.0	5.5	2.0	2.4	2.8	–	–	–
		Medium Dense to Dense Sand, Glacial Outwash	Non-cohesive	664.0	640.0	24.0	2.8	3.2	3.6	–	–	–
		Dense to V. Dense Clayey Sand with Gravel, Glacial Outwash	Non-cohesive	640.0	629.0	11.0	4.0	4.8	5.6	4	4	4
		Moderately Hard, Shale	–	629.0	624.0	5.0	–	–	–	12	12	12
Moderately Hard, Shale	–	624.0	619.5	4.5	–	–	–	18	18	18		

*Bottom of abutment footing as provided on the preliminary plans

Piles Resistances for Clear Creek East Bridge

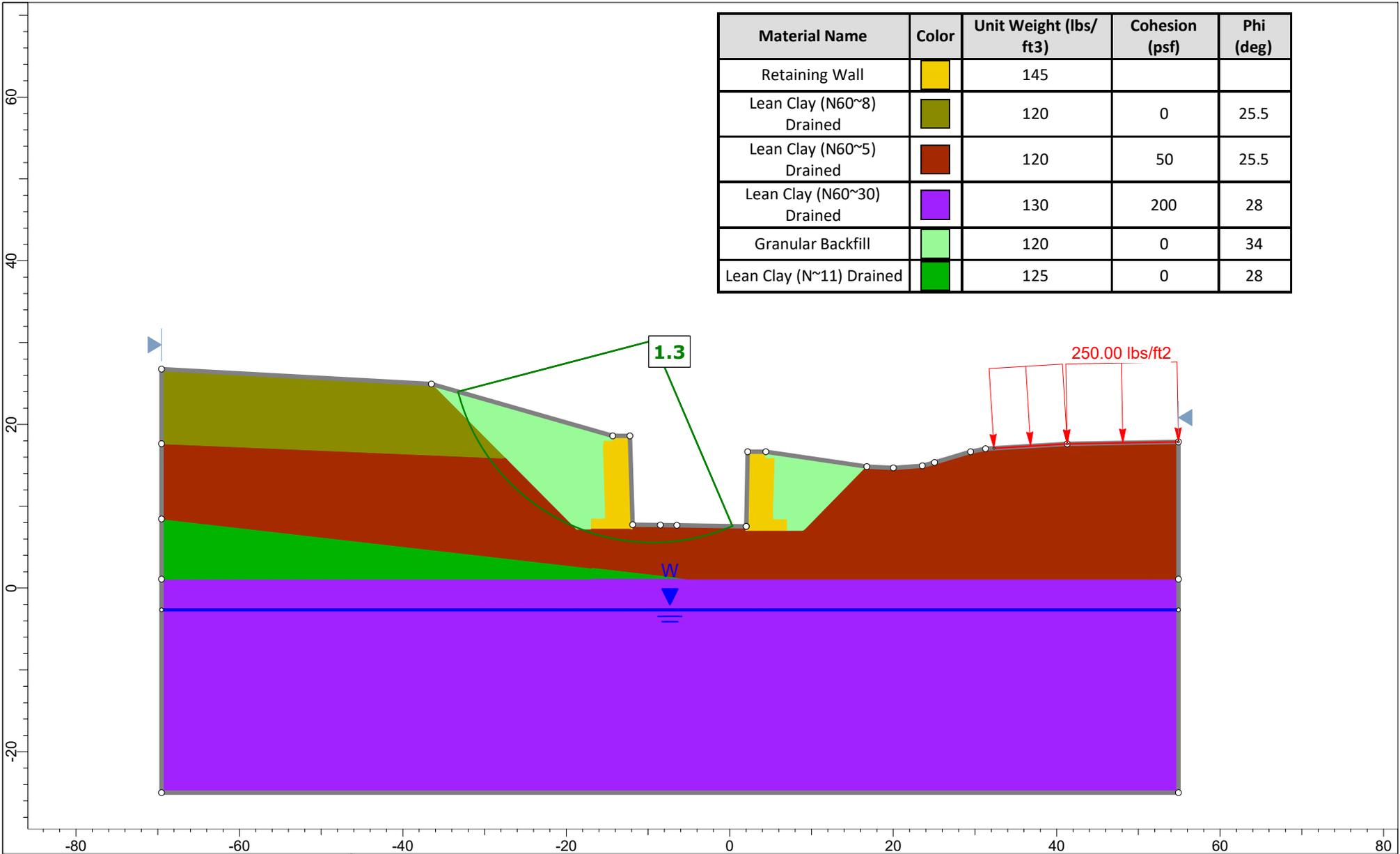
Boring	Substructure	Soil Classification	Soil Type	Top Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	H-Pile Unit Resistance for Skin Friction (kips/ft)			H-Pile Unit Resistance for End Bearing (ksi)		
							10-inch	12-inch	14-inch	10-inch	12-inch	14-inch
SB-12	West Abutment (Bottom of Abutment Footing at ~709 feet)*	New Fill	–	709.0	705.5	3.5	–	–	–	–	–	–
		Medium Lean Clay, Alluvium	Cohesive	705.5	693.0	12.5	1.2	1.6	2.0	–	–	–
		Stiff Sandy Lean Clay, Alluvium	Cohesive	693.0	686.0	7.0	2.0	2.4	2.8	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	686.0	674.0	12.0	2.0	2.4	2.8	–	–	–
		Loose to Medium Dense Sand, Glacial Outwash	Non-cohesive	674.0	663.0	11.0	1.2	1.2	1.6	–	–	–
		Stiff Sandy Lean Clay, Glacial Till	Cohesive	663.0	643.0	20.0	3.2	4.0	4.4	–	–	–
		Very Stiff Silty Clay with Sand, Glacial Till	Cohesive	643.0	633.0	10.0	4.0	4.8	5.6	–	–	–
		Very Stiff Sandy Lean Clay, Glacial Till	Cohesive	633.0	624.0	9.0	4.0	4.8	5.6	2	2	2
		Apparent Bedrock	–	624.0	623.9	0.1	–	–	–	18	18	18
SB-13	East Abutment (Bottom of Abutment Footing at ~709 feet)*	Soft to Medium Lean Clay, Alluvium	Cohesive	709.0	686.5	22.5	0.8	1.2	1.2	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	686.5	678.0	8.5	2.0	2.4	2.8	–	–	–
		Medium Dense Sand, Glacial Outwash	Non-cohesive	678.0	671.5	6.5	1.2	1.2	1.6	–	–	–
		Medium Dense to Dense Sand, Glacial Outwash	Non-cohesive	671.5	661.5	10.0	2.8	3.2	3.6	–	–	–
		Stiff Sandy Lean Clay, Glacial Till	Cohesive	661.5	647.0	14.5	3.2	4.0	4.4	–	–	–
		Stiff to Very Stiff Sandy Lean Clay, Glacial Till	Cohesive	647.0	635.0	12.0	4.0	4.8	5.6	–	–	–
		Moderately Hard, Shale	–	635.0	629.0	6.0	–	–	–	18	18	18

*Bottom of abutment footing as provided on the preliminary plans

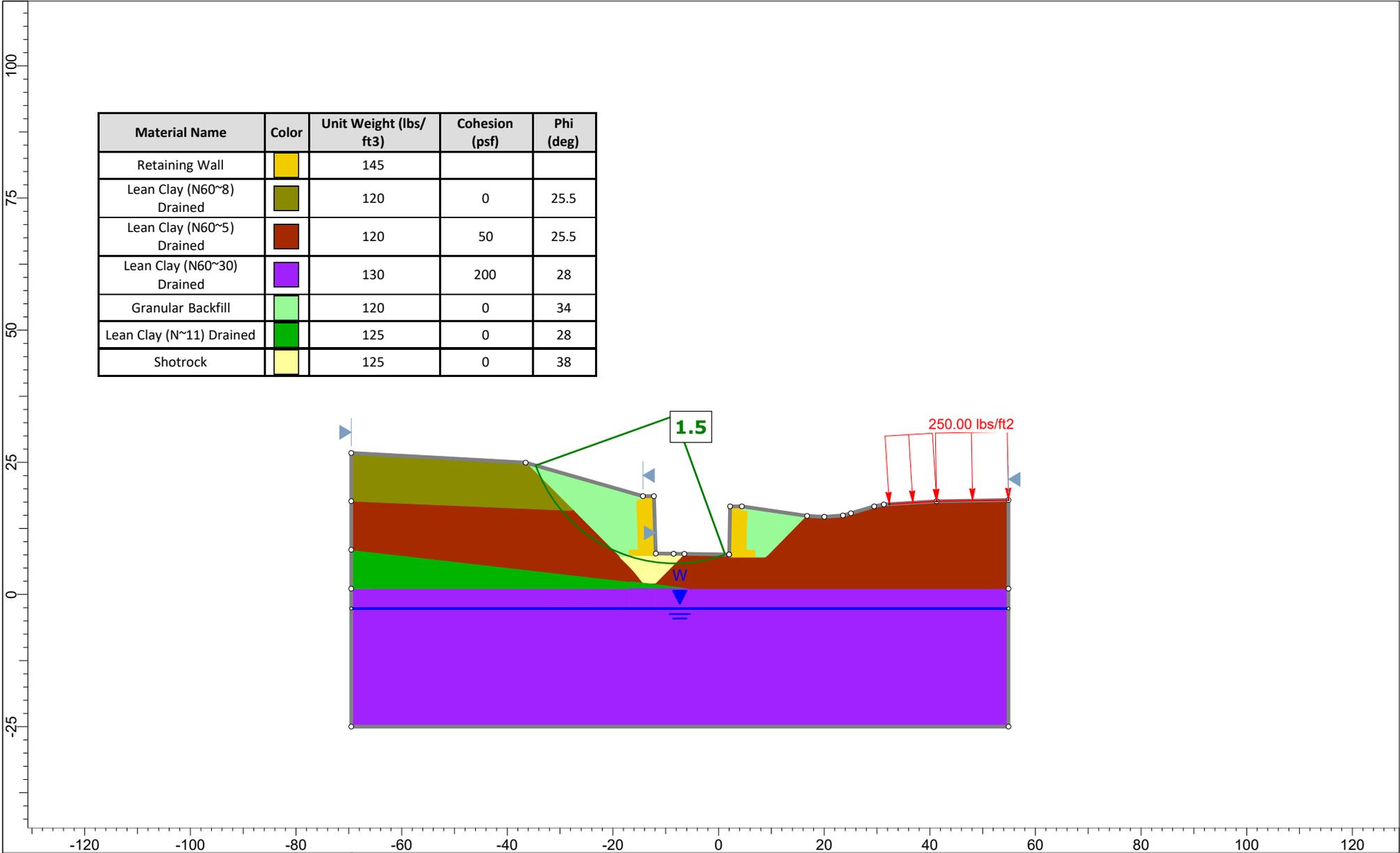


Appendix C

Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Retaining Wall	Yellow	145		
Lean Clay (N60~8) Drained	Olive Green	120	0	25.5
Lean Clay (N60~5) Drained	Brown	120	50	25.5
Lean Clay (N60~30) Drained	Purple	130	200	28
Granular Backfill	Light Green	120	0	34
Lean Clay (N~11) Drained	Dark Green	125	0	28



Project		Retaining Wall Sta 35+50	
Group	Retaining Wall @ Station 35+50	Scenario	Drained, LtoR
Drawn By	MLR	Company	Braun Intertec
Date	4/27/2023, 3:15:05 PM	File Name	Station 35+50_MLR Rev.slmd



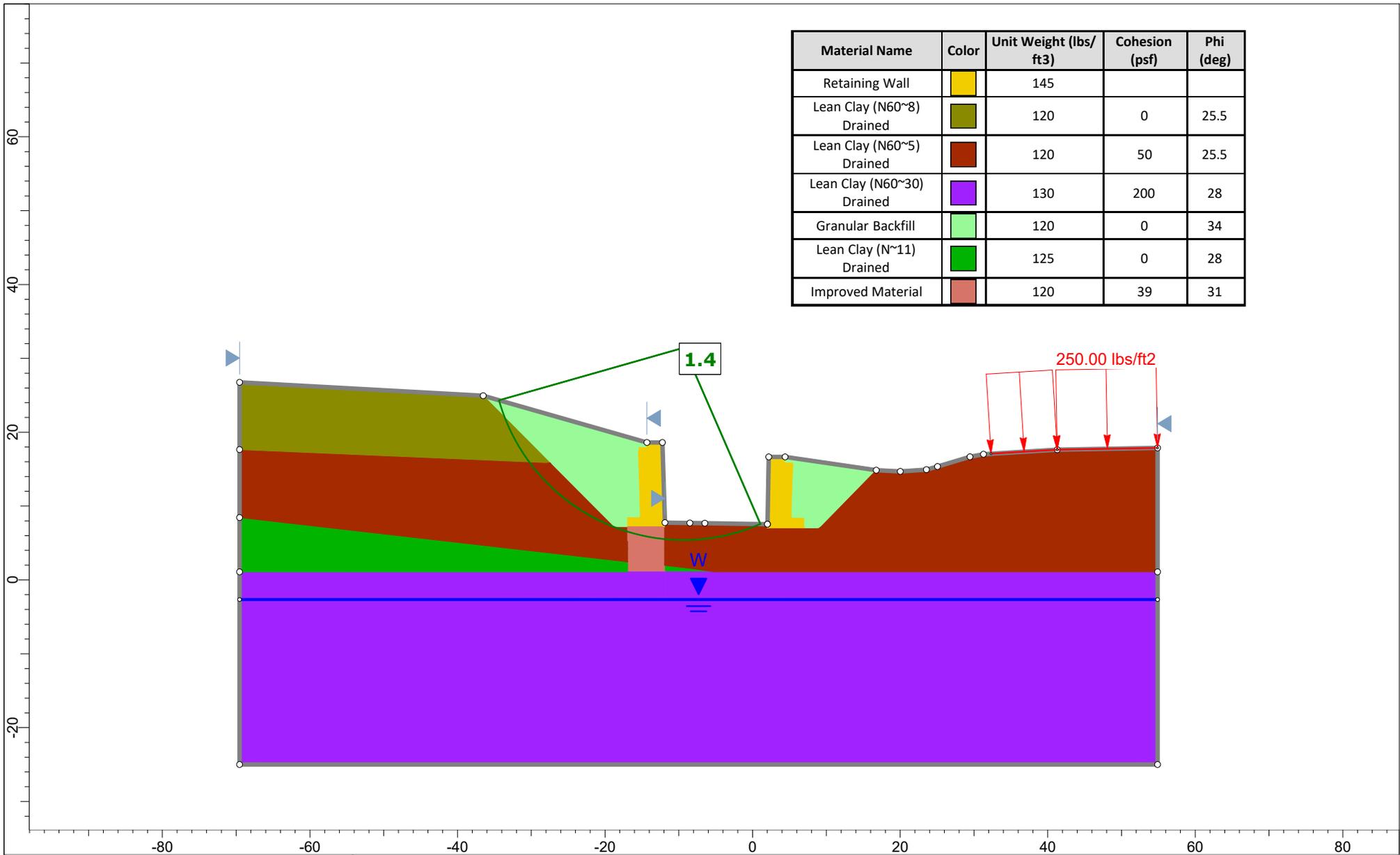
Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Retaining Wall	Yellow	145		
Lean Clay (N60~8) Drained	Olive	120	0	25.5
Lean Clay (N60~5) Drained	Brown	120	50	25.5
Lean Clay (N60~30) Drained	Purple	130	200	28
Granular Backfill	Light Green	120	0	34
Lean Clay (N~11) Drained	Green	125	0	28
Shotrock	Yellow	125	0	38



SLIDEINTERPRET 9.012

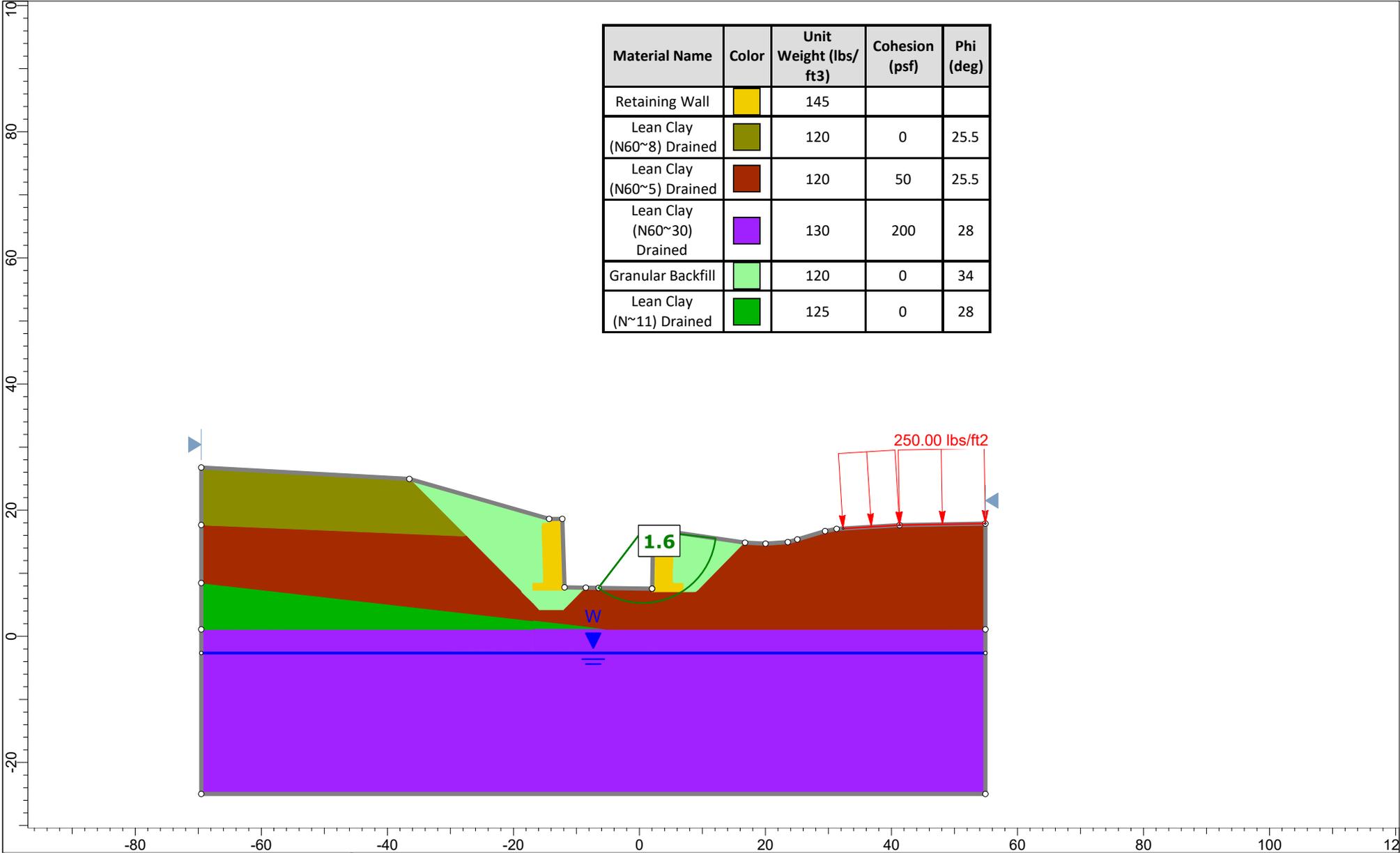
Project		Retaining Wall Sta 35+50	
Retaining Wall @ Station 35+50		Retaining Wall @ Station 35+50	
Drawn By		MLR	Company
Date		4/27/2023, 3:15:05 PM	Braun Intertec
		Drained, LtoR, with shotrock undercut	
		File Name	
		Station 35+50_MLR Rev.slmd	

Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Retaining Wall	Yellow	145		
Lean Clay (N60~8) Drained	Olive Green	120	0	25.5
Lean Clay (N60~5) Drained	Brown	120	50	25.5
Lean Clay (N60~30) Drained	Purple	130	200	28
Granular Backfill	Light Green	120	0	34
Lean Clay (N~11) Drained	Green	125	0	28
Improved Material	Reddish Brown	120	39	31

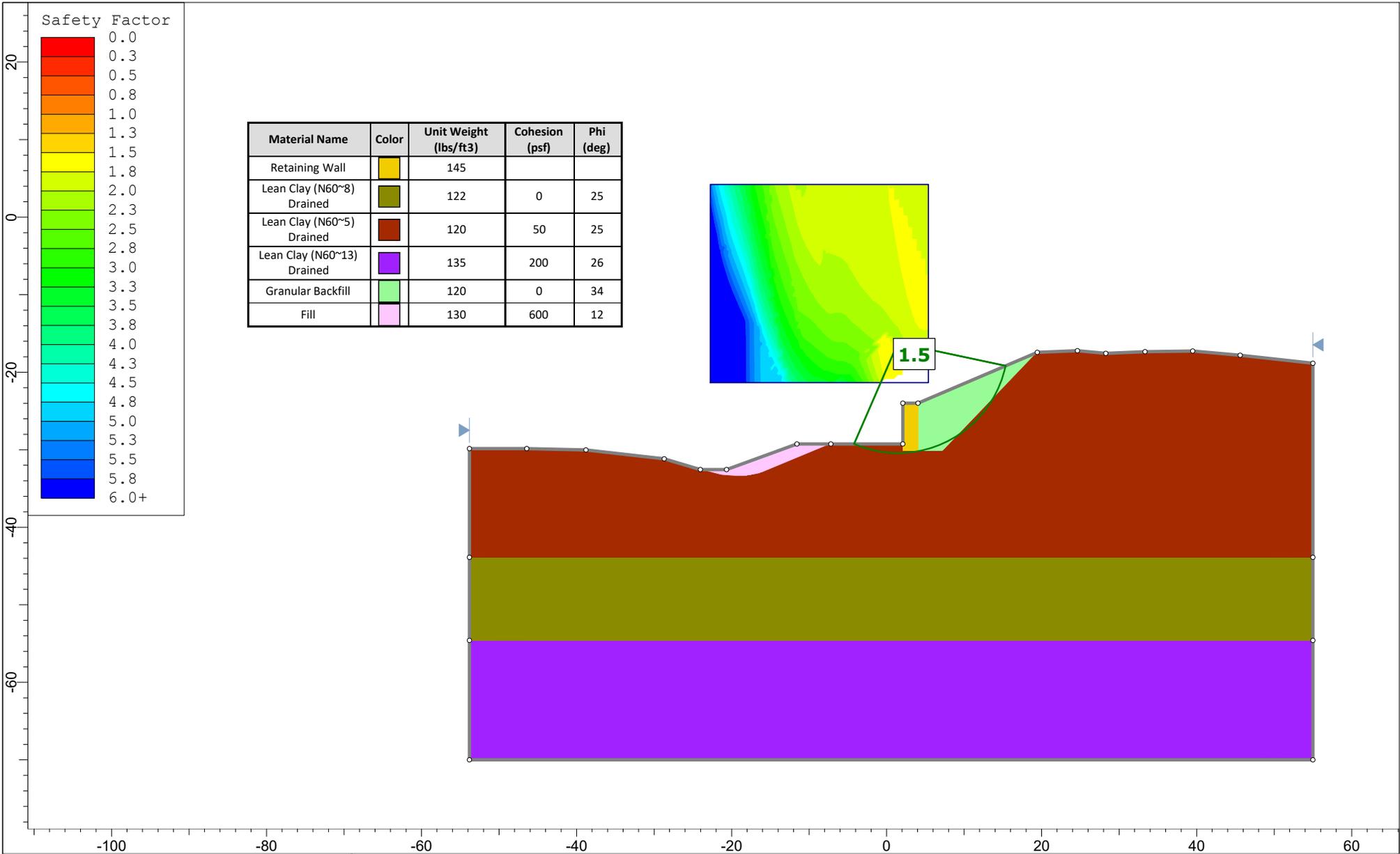


Project		Retaining Wall Sta 35+50	
Group	Retaining Wall @ Station 35+50	Scenario	Drained LtoR, with geopier
Drawn By	MLR	Company	Braun Intertec
Date	4/27/2023, 3:15:05 PM	File Name	Station 35+50_MLR Rev.slmd

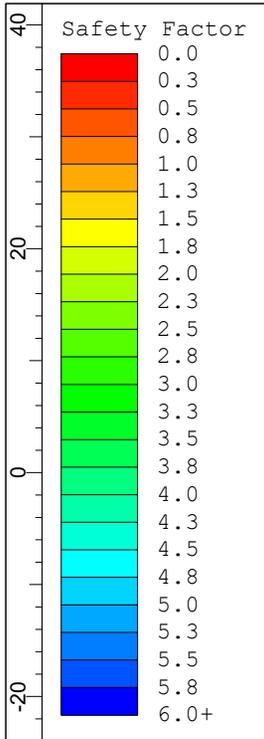
Material Name	Color	Unit Weight (lbs/ft ³)	Cohesion (psf)	Phi (deg)
Retaining Wall	Yellow	145		
Lean Clay (N60~8) Drained	Olive Green	120	0	25.5
Lean Clay (N60~5) Drained	Brown	120	50	25.5
Lean Clay (N60~30) Drained	Purple	130	200	28
Granular Backfill	Light Green	120	0	34
Lean Clay (N~11) Drained	Dark Green	125	0	28



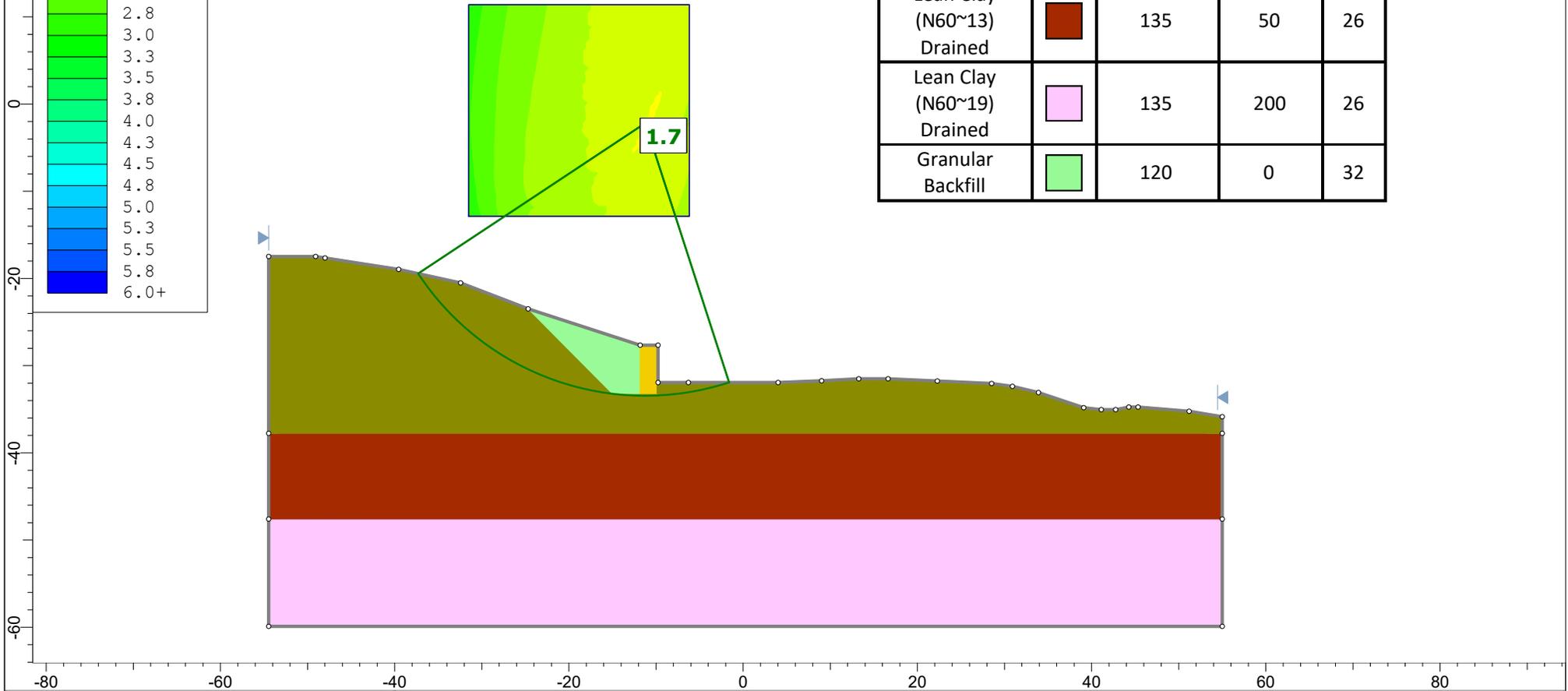
	Project		Retaining Wall Sta 35+50	
	Analysis Description		Retaining Wall @ Sta 35+50	Drained, RtoL
	Drawn By		MLR	Company
				Braun Intertec
	Date		4/27/2023, 3:15:05 PM	File Name
			Station 35+50_MLR Rev.slmd	



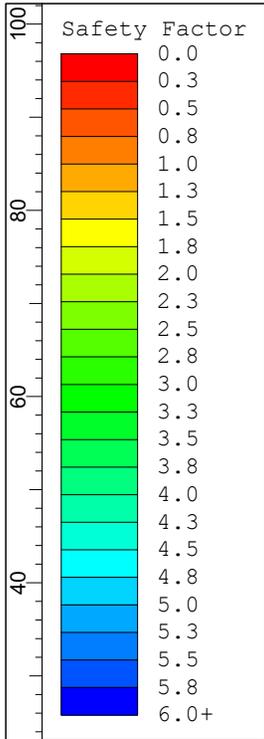
Project		Retaining Wall Sta 116+50	
Analysis Description		Retaining Wall @ Sta 116+50	Retaining Wall @ Station 116+50 - Drained
Drawn By		AA	Company Braun Intertec
Date		5/10/2023, 4:20:49 PM	File Name Station 116+50_adt.slmd



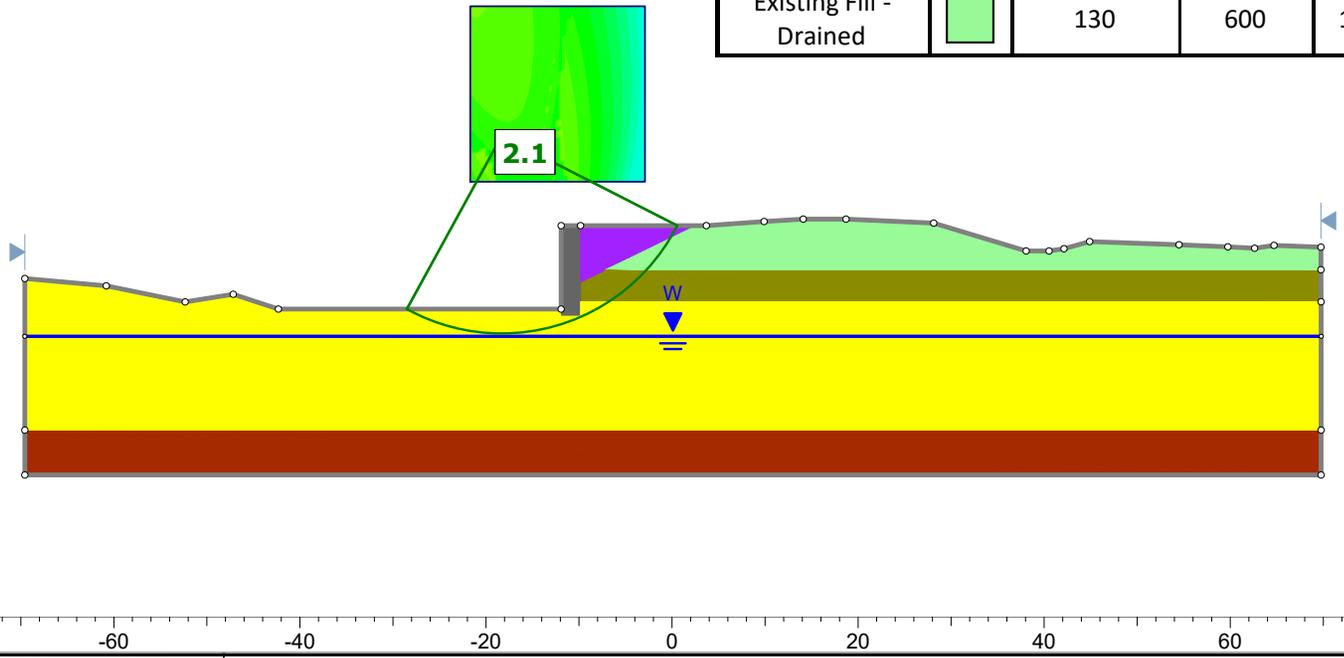
Material Name	Color	Unit Weight (lbs/ft ³)	Cohesion (psf)	Phi (deg)
Retaining Wall		145		
Lean Clay (Drained)		128	50	25
Lean Clay (N60~13) Drained		135	50	26
Lean Clay (N60~19) Drained		135	200	26
Granular Backfill		120	0	32



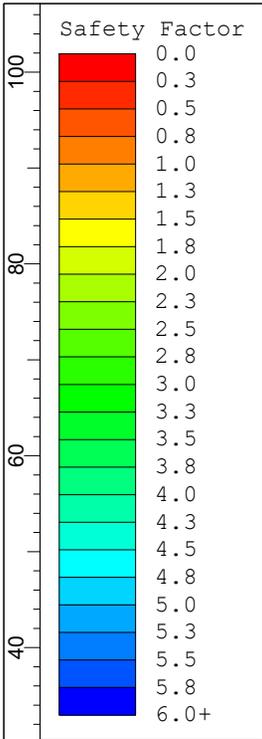
	Project		Retaining Wall Sta 138+50
	Analysis Description		Retaining Wall @ Sta 138+50
	Drawn By		AA
	Date		5/10/2023, 4:52:16 PM
		Company	Retaining Wall @ Station 138+50 - Drained
		File Name	Station 138+50.slm



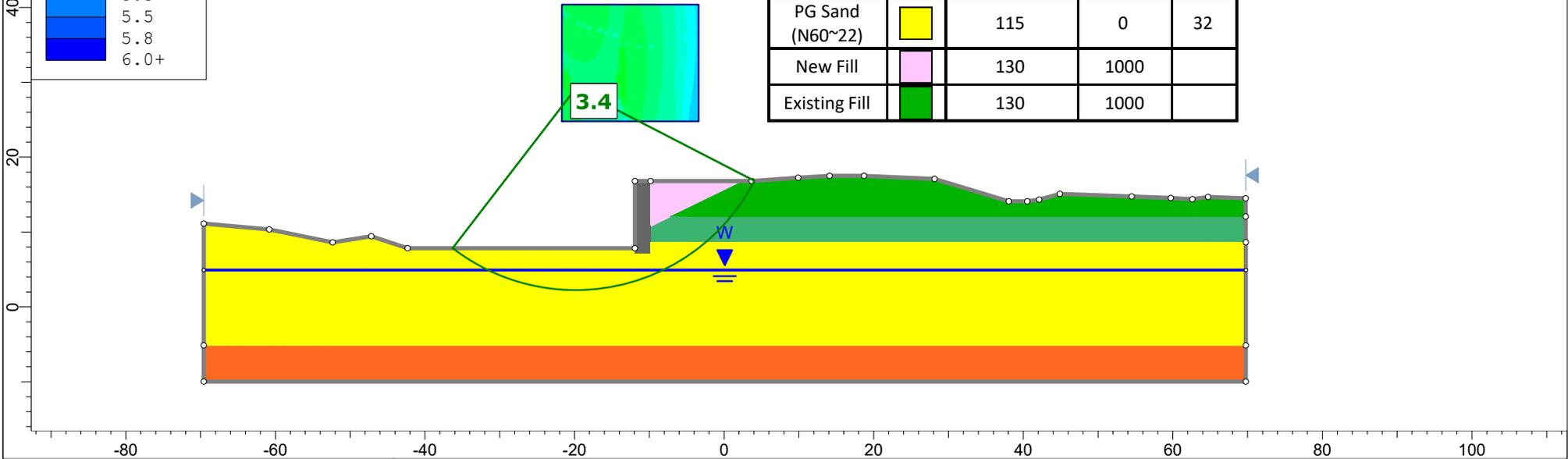
Material Name	Color	Unit Weight (lbs/ft ³)	Cohesion (psf)	Phi (deg)
Retaining Wall		145		
PG Sand (N60~22)		115	0	32
Lean Clay (N60~8) Drained		122	0	25
Lean Clay (N60~10) Drained		125	50	25
New Fill - Drained		125	600	12
Existing Fill - Drained		130	600	12



Project	Retaining Wall Sta 151+50	
Analysis Description	Retaining Wall @ Sta 151+50	Retaining Wall @ Station 151+50 - Drained
Drawn By	MLR	Company
Date	4/27/2023, 3:42:58 PM	File Name Station 151+50 Rev.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Retaining Wall	Grey	145		
Lean Clay (N60~8)	Green	122	900	
Lean Clay (N60~10)	Orange	125	1125	
PG Sand (N60~22)	Yellow	115	0	32
New Fill	Pink	130	1000	
Existing Fill	Dark Green	130	1000	



Project		Retaining Wall Sta 151+50	
Analysis Description		Retaining Wall @ Sta 151+50	Retaining Wall @ Station 151+50 - Undrained
Drawn By		MLR	Company Braun Intertec
Date		4/27/2023, 3:42:58 PM	File Name Station 151+50 Rev.slmd