Specifications for:

Parking Lot Improvements 2026
Piqua High School

Piqua High School
1 Indian Trail
Piqua, OH 45356

Prepared for:

Piqua City School District
215 Looney Road
Piqua, OH 45356

Prepared by:

RDA GROUP ARCHITECTS
7662 PARAGON ROAD | DAYTON, OH 45459 | 937.610.3440

Bid Set
May 01, 2026

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BID GUARANTY AND CONTRACT BOND

[153.571 Ohio Revised Code]

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____ _____ as principal and _____ _____as sureties, are hereby held and firmly bound unto _____ _____as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the obligee on _____ 2026 to undertake the project known as: **PARKING LOT IMPROVEMENTS 2026 – PIQUA HIGH SCHOOL** [Project Name]

The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additives or deductive alternative proposals made by the principal on the date referred to above to the obligee, which are accepted by the obligee, in no case shall the penal sum exceed the amount of _____Dollars.

[If the above line is left blank, the penal sum will be the full amount of the principal's bid, including alternates. Alternatively, if complete, the amount stated must not be less than the full amount of the bid including alternates, in dollars and cents. [A percentage is not acceptable.] For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named principal has submitted a bid for **PARKING LOT IMPROVEMENTS 2026 – PIQUA HIGH SCHOOL.**

NOW, THERFORE, if the obligee accepts the bid of the principal and the principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications and bills of material; and in the event the principal pays to the obligee the difference not to exceed ten per cent of the penalty hereof between the amount specified in the bid and such larger amount for which the obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the obligee accepts the bid of the principal and the principal within ten days after the awarding of the contract enters into a proper contract in accordance with the bid, plans, details, specifications and bills of material, which said contract is made a part of this bond the same as though set forth herein;

NOW ALSO, if the said _____shall well and faithfully do and perform the things agreed by_____to be done and performed according to the terms of said contract; and shall pay all lawful claims of the subcontractors, materials suppliers and laborers, for labor perform and materials furnished in carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materials suppliers or laborer having a just claim, as well as for the oblige hereon; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID surety hereby stipulates and agrees that no modification, omissions, or additions, in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond.

SIGNED AND SEALED This _____ day of _____, 20___.

PRINCIPAL: _____

BY: _____

TITLE: _____

SURETY: _____ SURETY COMPANY ADDRESS:

_____ _____

_____

SURETY AGENT ADDRESS:

BY: _____ _____

Attorney-in-Fact _____

AFFIDAVIT ON DISCLOSURE OF DELIQUENT PERSONAL PROPERTY TAXES
[5719.042 Ohio Revised Code]

State of Ohio SS

County of MIAMI

The undersigned being duly authorized officer [s] or owner [s] of _____ _____[Company] Do solemnly swear or affirm that charges of personal property taxes on the general tax list of personal property taxes of any county in which the **Piqua City School District** has territory [have] [have not] been made against _____ _____[Company].

The following is a true and accurate listing of all due and unpaid delinquent taxes and any due and unpaid penalties and interest thereon.

_____
Signature of Officer or Owner

Sworn or affirmed to before me and subscribed in my presence this _____ day of _____, 20___

_____
Notary Public

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AIA® Document A104™ – 2017

Standard Abbreviated Form of Agreement Between Owner and Contractor

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 Substantial Completion

§ 2.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check the appropriate box and complete the necessary information.)

☐ Not later than ( ) calendar days from the date of commencement of the Work.

☐ By the following date:

§ 2.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 2.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 2.3, liquidated damages, if any, shall be assessed as set forth in Section 3.5.

ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

☐ Stipulated Sum, in accordance with Section 3.2 below

☐ Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below

☐ Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.2.2 Unit prices, if any:
(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 3.2.3 Allowances, if any, included in the stipulated sum:
(Identify each allowance.)

Item	Price

§ 3.3 Cost of the Work Plus Contractor's Fee
§ 3.3.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4 Cost of the Work Plus Contractor's Fee With a Guaranteed Maximum Price
§ 3.4.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4.3 Guaranteed Maximum Price
§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed ($), subject to additions and deductions by changes in the Work as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.
(Insert specific provisions if the Contractor is to participate in any savings.)

§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4.3.3 Unit Prices, if any:
(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 3.4.3.4 Allowances, if any, included in the Guaranteed Maximum Price:
(Identify each allowance.)

Item	Price

§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:

§ 3.4.3.6 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order.

§ 3.4.3.7 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 3.4.3.5. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 3.4.3.5 and the revised Contract Documents.

§ 3.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

ARTICLE 4 PAYMENT

§ 4.1 Progress Payments

§ 4.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 4.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 4.1.4 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold retainage from the payment otherwise due as follows:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment and any terms for reduction of retainage during the course of the Work. The amount of retainage may be limited by governing law.)

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

%

§ 4.2 Final Payment

§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the Contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a Guaranteed Maximum Price; and

.3 a final Certificate for Payment has been issued by the Architect in accordance with Section 15.7.1.

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 5 DISPUTE RESOLUTION

§ 5.1 Binding Dispute Resolution

For any claim subject to, but not resolved by, mediation pursuant to Section 21.5, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

☐ Arbitration pursuant to Section 21.6 of this Agreement

☐ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.

ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS

§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A104™–2017, Standard Abbreviated Form of Agreement Between Owner and Contractor.

§ 6.1.2 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203–2013 incorporated into this Agreement.)

§ 6.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 6.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages

§ 6.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date

§ 6.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are enumerated in this Article 6.

§ 6.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 Other Exhibits:
(Check all boxes that apply.)

☐ Exhibit A, Determination of the Cost of the Work.

☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents.)

ARTICLE 7 GENERAL PROVISIONS

§ 7.1 The Contract Documents

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 7.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

§ 7.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 7.4 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 7.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 7.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to the protocols established pursuant to Sections 7.6 and 7.7, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 7.6 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 7.7 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 7.8 Severability

The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 7.9 Notice

§ 7.9.1 Except as otherwise provided in Section 7.9.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering Notice in electronic format such as name, title and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 7.9.2 Notice of Claims shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 7.10 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

ARTICLE 8 OWNER

§ 8.1 Information and Services Required of the Owner

§ 8.1.1 Prior to commencement of the Work, at the written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 8.1.1, the Contract Time shall be extended appropriately.

§ 8.1.2 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.3 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.4 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments, and charges required for the construction, use, or occupancy of permanent structures or for permanent changes in existing facilities.

§ 8.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 8.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 15.4.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including the Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 21.

ARTICLE 9 CONTRACTOR

§ 9.1 Review of Contract Documents and Field Conditions by Contractor

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.2, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 9.2 Supervision and Construction Procedures

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

§ 9.3 Labor and Materials

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Architect and in accordance with a Modification.

§ 9.4 Warranty

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants

that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage. All other warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 15.6.3.

§ 9.5 Taxes

The Contractor shall pay sales, consumer, use, and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 9.6 Permits, Fees, Notices, and Compliance with Laws

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 9.7 Allowances

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Contractor's costs for unloading and handling at the site, labor, installation, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowance.

§ 9.8 Contractor's Construction Schedules

§ 9.8.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 9.8.2 The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

§ 9.9 Submittals

§ 9.9.1 The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements, and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

§ 9.9.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

§ 9.9.3 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents or unless the Contractor needs to provide such services in order to carry out the Contractor's own responsibilities. If professional design services or certifications by a design professional are specifically required, the Owner and the Architect will specify the performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional. If no criteria are specified, the design

shall comply with applicable codes and ordinances. Each Party shall be entitled to rely upon the information provided by the other Party. The Architect will review and approve or take other appropriate action on submittals for the limited purpose of checking for conformance with information provided and the design concept expressed in the Contract Documents. The Architect's review of Shop Drawings, Product Data, Samples, and similar submittals shall be for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. In performing such review, the Architect will approve, or take other appropriate action upon, the Contractor's Shop Drawings, Product Data, Samples, and similar submittals.

§ 9.10 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 9.11 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 9.12 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus material from and about the Project.

§ 9.13 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 9.14 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 9.15 Indemnification

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

§ 9.15.2 In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 10 ARCHITECT

§ 10.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 10.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 10.3 The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 10.4 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 10.5 Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 10.6 The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

§ 10.7 The Architect will review and approve or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 10.8 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes, and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

§ 10.9 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

ARTICLE 11 SUBCONTRACTORS

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

§ 11.2 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the Subcontractors or suppliers proposed for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 12.2 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a Separate Contractor because of delays, improperly timed activities, or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work, or defective construction of a Separate Contractor.

ARTICLE 13 CHANGES IN THE WORK

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor, and Architect, or by written Construction Change Directive signed by the Owner and Architect. Upon issuance of the Change Order or Construction Change Directive, the Contractor shall proceed promptly with such changes in the Work, unless otherwise provided in the Change Order or Construction Change Directive.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

§ 13.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing this Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Architect in accordance with Section 15.6.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) changes ordered in the Work; (2) by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably

anticipatable, unavoidable casualties, or any causes beyond the Contractor's control; or (3) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine, subject to the provisions of Article 21.

ARTICLE 15 PAYMENTS AND COMPLETION

§ 15.1 Schedule of Values

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price pursuant to Section 3.2 or 3.4, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Stipulated Sum or Guaranteed Maximum Price to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy required by the Architect. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 15.1.2 The allocation of the Stipulated Sum or Guaranteed Maximum Price under this Section 15.1 shall not constitute a separate stipulated sum or guaranteed maximum price for each individual line item in the schedule of values.

§ 15.2 Control Estimate

§ 15.2.1 Where the Contract Sum is the Cost of the Work, plus the Contractor's Fee without a Guaranteed Maximum Price pursuant to Section 3.3, the Contractor shall prepare and submit to the Owner a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the estimated Cost of the Work plus the Contractor's Fee.

§ 15.2.2 The Control Estimate shall include:

.1 the documents enumerated in Article 6, including all Modifications thereto;

.2 a list of the assumptions made by the Contractor in the preparation of the Control Estimate to supplement the information provided by the Owner and contained in the Contract Documents;

.3 a statement of the estimated Cost of the Work organized by trade categories or systems and the Contractor's Fee;

.4 a project schedule upon which the Control Estimate is based, indicating proposed Subcontractors, activity sequences and durations, milestone dates for receipt and approval of pertinent information, schedule of shop drawings and samples, procurement and delivery of materials or equipment the Owner's occupancy requirements, and the date of Substantial Completion; and

.5 a list of any contingency amounts included in the Control Estimate for further development of design and construction.

§ 15.2.3 When the Control Estimate is acceptable to the Owner and Architect, the Owner shall acknowledge it in writing. The Owner's acceptance of the Control Estimate does not imply that the Control Estimate constitutes a Guaranteed Maximum Price.

§ 15.2.4 The Contractor shall develop and implement a detailed system of cost control that will provide the Owner and Architect with timely information as to the anticipated total Cost of the Work. The cost control system shall compare the Control Estimate with the actual cost for activities in progress and estimates for uncompleted tasks and proposed changes. This information shall be reported to the Owner, in writing, no later than the Contractor's first Application for Payment and shall be revised and submitted with each Application for Payment.

§ 15.2.5 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in the Control Estimate. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the Control Estimate and the revised Contract Documents.

§ 15.3 Applications for Payment

§ 15.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 15.1, for completed portions of the Work. The application shall be notarized, if required; be supported by all data substantiating the Contractor's right to payment that the Owner or Architect require; shall reflect retainage if provided for in the Contract Documents; and include any revised cost control information required by Section 15.2.4. Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 15.3.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 15.3.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.3.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

§ 15.4 Certificates for Payment

§ 15.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.4.3.

§ 15.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.4.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

- .1 defective Work not remedied;
- .2 third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 15.4.4 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 15.4.3, in whole or in part, that party may submit a Claim in accordance with Article 21.

§ 15.5 Progress Payments

§ 15.5.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner.

§ 15.5.2 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor or supplier except as may otherwise be required by law.

§ 15.5.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 15.5.4 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 15.6 Substantial Completion

§ 15.6.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.6.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.6.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.6.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 15.7 Final Completion and Final Payment

§ 15.7.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.7.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 15.7.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 15.7.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

.1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 15.7.4 Acceptance of final payment by the Contractor, a Subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of the final Application for Payment.

ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

§ 16.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with, and give notices required by, applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury, or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3. The Contractor may make a claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

§ 16.2 Hazardous Materials and Substances

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 16.2.2 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 16.2.3 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

ARTICLE 17 INSURANCE AND BONDS

§ 17.1 Contractor's Insurance

§ 17.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in this Section 17.1 or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 18.4, unless a different duration is stated below:

§ 17.1.2 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than ($) each occurrence, ($) general aggregate, and ($) aggregate for products-completed operations hazard, providing coverage for claims including

- **.1** damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- **.2** personal and advertising injury;
- **.3** damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- **.4** bodily injury or property damage arising out of completed operations; and
- **.5** the Contractor's indemnity obligations under Section 9.15.

§ 17.1.3 Automobile Liability covering vehicles owned by the Contractor and non-owned vehicles used by the Contractor, with policy limits of not less than ($) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 17.1.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 17.1.2 and 17.1.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 17.1.5 Workers' Compensation at statutory limits.

§ 17.1.6 Employers' Liability with policy limits not less than ($) each accident ($) each employee, and ($) policy limit.

§ 17.1.7 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ 17.1.8 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ 17.1.9 Coverage under Sections 17.1.7 and 17.1.8 may be procured through a Combined Professional Liability and Pollution Liability insuranee policy, with combined policy limits of not less than ($) per claim and ($) in the aggregate.

§ 17.1.10 The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Section 17.1 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the period required by Section 17.1.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy.

§ 17.1.11 The Contractor shall disclose to the Owner any deductible or self- insured retentions applicable to any insurance required to be provided by the Contractor.

§ 17.1.12 To the fullest extent permitted by law, the Contractor shall cause the commercial liability coverage required by this Section 17.1 to include (1) the Owner, the Architect, and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's Consultants, CG 20 32 07 04.

§ 17.1.13 Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.1, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 17.1.14 Other Insurance Provided by the Contractor
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits

§ 17.2 Owner's Insurance
§ 17.2.1 Owner's Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 17.2.2 Property Insurance
§ 17.2.2.1 The Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed or materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section 17.2.2.2, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ 17.2.2.2 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section 17.2.2.1 or, if necessary, replace the insurance policy required under Section 17.2.2.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 18.4.

§ 17.2.2.3 If the insurance required by this Section 17.2.2 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ 17.2.2.4 If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 18.4, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ 17.2.2.5 Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Section 17.2.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by this Section 17.2.2. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ 17.2.2.6 Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.2.2, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 17.2.2.7 Waiver of Subrogation

§ 17.2.2.7.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by this Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 17.2.2.7 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 17.2.2.7.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 17.2.2.7.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 17.2.2.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements, written where legally required for validity, the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 17.2.3 Other Insurance Provided by the Owner

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

§ 17.3 Performance Bond and Payment Bond

§ 17.3.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in the Contract Documents on the date of execution of the Contract.

§ 17.3.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.1.7.3 in Exhibit A, Determination of the Cost of the Work.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.6.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

§ 18.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

§ 18.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 18.5 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18.

ARTICLE 19 MISCELLANEOUS PROVISIONS

§ 19.1 Assignment of Contract

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 19.2 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.6.

§ 19.3 Tests and Inspections

Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 19.4 The Owner's representative:
(Name, address, email address and other information)

§ 19.5 The Contractor's representative:
(Name, address, email address and other information)

§ 19.6 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

ARTICLE 20 TERMINATION OF THE CONTRACT

§ 20.1 Termination by the Contractor

If the Architect fails to certify payment as provided in Section 15.4.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 20.2 Termination by the Owner for Cause

§ 20.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the reasons described in Section 20.2.1 exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Owner shall pay the Contractor for Work executed; and costs incurred by reason of such termination, including costs attributable to termination of Subcontracts; and a termination fee, if any, as follows:
(Insert the amount of or method for determining the fee payable to the Contractor by the Owner following a termination for the Owner's convenience, if any.)

ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Claims, disputes, and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision. Such matters, except those waived as provided for in Section 21.11 and Sections 15.7.3 and 15.7.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to binding dispute resolution.

§ 21.2 Notice of Claims

§ 21.2.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the Architect within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 21.2.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the other party.

§ 21.3 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action against the other and arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in this Agreement, whether in contract, tort, breach of warranty, or otherwise, within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 21.3.

§ 21.4 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.5 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of this Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 21.6 If the parties have selected arbitration as the method for binding dispute resolution in this Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 21.7 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the

arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 21.8 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.

§ 21.9 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to this Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 21.10 Continuing Contract Performance

Pending final resolution of a Claim, except as otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 21.11 Waiver of Claims for Consequential Damages

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 20. Nothing contained in this Section 21.11 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

SUPPLEMENTARY CONDITIONS TO THE CONTRACT

The following supplements, modifies, changes, deletes from or adds to the 'Standard Form of Agreement between Owner and Contractor,' AIA Document A104, 2017 Edition

ARTICLE 2
DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

2.1 Date of Commencement: **May 26, 2026** [unless otherwise approved by Owner]
The Owner must agree on the Contractor's start date. The Contractor must have the necessary workforce to complete the project on time. An executed contract and all approved submittals must be complete before the actual work can commence. Contractor is responsible to prepare all product submittals necessary for the project in a timely fashion to ensure proper scheduling / execution of the project. There is no change to the construction schedule / date of commencement if the Contractor fails to complete the submittals / documents in a timely fashion.

2.2: The Contract Time shall be measured from the date of commencement with **NO weather days**. Workdays lost shall be anticipated by the bidder based on normal weather patterns in the area.

2.3: Substantial Completion: **August 1, 2026**. It is mutually agreed and understood by the Contractor that the time of project completion is of the essence of the contract. Completion includes the final clean up and removal from the site all materials, supplies and equipment associated with the work [seeding / site restoration may be excepted from substantial completion pending weather conditions].
Delay charges [liquidated damages] will be accessed if the work is not complete by the substantial completion date indicated.
Substantial Completion is defined when the Contractor has notified the Owner / Architect that the project is complete and ready for a punchlist, and a punchlist inspection has been accomplished by the Owner / Architect. The punch list shall be completed by the contract completion date established herein.
Contract Completion: **September 30, 2026**

ARTICLE 3
CONTRACT SUM

3.1 Check stipulated sum.
3.3 Omit the entire paragraph.
3.4 Omit the entire paragraph.
3.5 The Contractor by signing the contract agrees that the delay forfeiture could be accessed if the work is not completed within the days as noted in the contract. This amount may be deducted from the retainage or last payment if ample amount exists. The delay forfeiture shall be as follows:

DELAY FORFEITURE SCHEDULE

Contract Amount	Dollars per Calendar Day
$0 to $5,000,000.00	$ 2,000.00

ARTICLE 4
PAYMENTS

4.1.4 The Owner will pay ninety-six [96] percent of materials and ninety-six [96] percent of labor until the work has reached substantial completion, meeting the requirements of ORC Section 153.12. Submit pay applications to Architect on a monthly basis. Acceptance or adjustment of the pay request will be accomplished within seven [7] calendar days. Payment will be made to the Contractor within 30 calendar days [unless stated otherwise] after Architect certifies the pay application and forwards to the Owner for payment. Payment will be made for materials on site provided Architect has inspected such materials and found to meet the specifications [see 15.1.3]. No payment will be made for stored material off site.

4.2.1 Upon receipt of associated warranties and project closeout documents.

ARTICLE 5
DISPUTE RESOLUTION

5.1 Check, Arbitration.

ARTICLE 6
ENUMERATION OF CONTRACT DOCUMENTS

6.1.7 Omit the entire paragraph.

ARTICLE 8
OWNER

8.1.1 Omit entire sentence.

ARTICLE 13
CHANGES IN THE WORK

13.1/2 AIA Document G701 'Change Order', shall be used for all changes in the contract. Only changes provided in writing on this form will be considered and processed. In some cases, the Owner or Architect may elect to give a verbal change request with the writing change documentation to follow. If a contingency amount is provided a written change is required to exceed the amount. No time extensions will be given for contingency allowance work. Contractor shall provide all required supporting documentation for change orders to Architect. Architect will draft the change order for signature. An approved change order must be signed by Architect, the Owner and the Contractor, before payment is documented or made. Contractor to bear all costs for changes made without approval [verbal or written] and will not be reimbursed. **Fifteen percent [15%] maximum mark-up [overhead and profit] for all contractor changes in work allowed with all invoices and back up data must be provided.**

ARTICLE 15
PAYMENTS AND COMPLETION

15.3 The form of Application for payment shall be on a company letterhead invoice along with AIA document G702 and G703 submitted to Architect.

15.6.4 Architect will issue Certificate of Substantial Completion will be issued at / after the final inspection.

15.7 Architect will certify final payment to the Contractor only after Final inspection by Architect / Owner with completed punch list items from prior inspections and all closeout documents, warranties, etc submitted by the Contractor.

ARTICLE 17
INSURANCE AND BONDS

17.1 Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

.1 Premises-operations
.2 Explosion and collapse
.3 Personal injury coverage
.4 Products coverage
.5 Completed operation
.6 Independent Contractor's protection
.7 Owned, non-owned and hired motor vehicles

17.1 The following coverage limits shall apply:

.1 Worker's Compensation-Statutory, in accordance with the laws of the State.
.2 Employer's liability-$1,000,000.00
.3 Commercial liability
a. Bodily injury, personal injury, property damage-$1,000,000.00; single limit.
.4 Automobile liability
a. Bodily injury, property damage-$1,000,000.00; single limit.
.5 Environmental Remediation Work-$1,000,000.00

17.1 ACORD certificate of liability insurance shall be furnished with the contract written on form CG 20 10 07 04 or CG 20 37 07 04 or equivalent form of a blanket endorsement for loss arising from contractors' operations and completed operation for as long as one or both parties to the contract may be exposed to liability arising from the work, containing all coverage as required, as noted including listing the owner. Such policy shall be the primary coverage for all claims containing all coverage as required, including listing the owner as additional insured. Furnish any endorsements that amend or cancel coverages or limits to Architect immediately.

17.3.1 Performance and Payment bond shall be furnished with the contract prior to commencement of work in the amount of the total construction contract.

ARTICLE 19
MISCELLANEOUS PROVISIONS

19.7 Substitute the "firm of RDA Group Architects, LLC for all references to Architect or RDA/RDA Group Architects or Owner's Consultant in the contract documents.

19.8 Discrimination: The Contractor hereby agrees that neither he, nor any subcontractors or other person acting on his behalf, shall, in the hiring of employees for the performance of work under this Agreement, discriminate against any citizen of this state in the employment of labor or workers by reason of creed, color, sex, age, religion, disability, military status as defined in Section 4112.01 of the Revised Code, or familial status and/or national origin.

The Contractor further agrees that neither he, nor any subcontractor or any other person acting on his behalf, shall in any manner discriminate against or intimidate any employee hired for the performance of work under this contract by reason of creed, color, sex, age, religion, disability, military status, as defined in Section 4112.01 of the Revised Code, or familial status and/or national origin of the employee.

Pursuant to Ohio Revised Code Section 153.60 regarding contracts that use State funding, twenty-five dollars ($25.00) shall be deducted from the amount payable to the Contractor by the Owner under this Agreement for each person who is discriminated against or intimidated, as defined in R.C. 153.59, in violation of this Agreement. The Agreement shall be canceled or terminated by the County and all money to become due hereunder and be forfeited for a second or subsequent violation of the terms of this section of the Agreement.

19.9 The Contractor shall make a good faith effort to ensure that no employee will purchase, transfer, use or possess or be under the influence of alcohol or illegal drugs, or abuse legally obtained drugs while on or about the project. The unlawful or unauthorized purchase, possession, consumption, use sale, dispensing, or distribution of illicit drugs and alcohol is prohibited on School property.

19.10 Within ten [10] days of notification of award of Contract, the successful Bidder shall furnish the following information, to the Owner:

1 Certificate of insurance
2 Copy of Worker's Compensation Certificate [kept current for the life of the project]
3 If a non-Ohio corporation, a copy of Certificate from the Secretary of State of Ohio showing the right to do business in Ohio.
4 All appropriate bonds
5 List of sub-contractors, if any, to be used on the project
6 Sworn affidavit of compliance with the Ohio Revised Code 5719.042
7 Projected billing schedule and schedule of values AIA document G-702 & 703.

END OF SUPPLEMENTARY CONDITIONS

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Piqua High School Parking Lot Improvements 2026
1 Indian Trail
Piqua, OH 45356

THE OWNER:
(Name, legal status and address)

Piqua City School District
215 Looney Road
Piqua, OH 45356

THE ARCHITECT:
(Name, legal status and address)

RDA Group Architects, LLC
7662 Paragon Road
Dayton, OH 45459

TABLE OF ARTICLES

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™–2017, Guide for Supplementary Conditions.

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

INDEX
(Topics and numbers in bold are Section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the

purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct,

but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as

constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The

Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, 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 the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the

Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;

.2 The amount of the adjustment, if any, in the Contract Sum; and

.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others

whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;

.2 failure of the Work to comply with the requirements of the Contract Documents;

.3 terms of special warranties required by the Contract Documents; or

.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed

by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve

the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to

fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or

approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in

Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner

may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially

similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

TECHNICAL SPECIFICATIONS

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Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio

Submitted To:

RDA Group Architects
Attn: Mr. Jonathan Schaaf
7662 Paragon Boulevarrd
Dayton, Ohio 45459

Report No. 20006428-0326-053
March 10, 2026

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March 10, 2026

RDA Group Architects
Attention: Mr. Jonathan Schaaf, Principal, Sr. Project Architect
7662 Paragon Boulevard
Dayton, Ohio 45459

Re: Report No. 20006428-0326-053; Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio

Dear Mr. Schaaf:

Bowser-Morner, Inc. is pleased to submit our report of the soil study for the above-referenced project. The purpose of this study is to determine the physical characteristics of the soil strata and allowable bearing capacity for the foundations of structures within the proposed development site. Also noted are other conditions that could affect the design and/or construction of the structures.

The samples collected that were not used to perform the laboratory tests will be kept in our laboratory for 30 days unless you advise us otherwise. If you have any questions or if we can help you in any way on this project or future work, please call us.

Respectfully submitted,
BOWSER-MORNER, INC.

Daniel M. Otieno
Geotechnical Engineer

Chris R. Ryan, M.S.C.E., P.E.
Sr. Geotechnical Engineer

DO/CRR/an
3-Client
2-File

TABLE OF CONTENTS

Section I

Text

1.0 INTRODUCTION

The next phase of the Piqua High School/Junior High development will be constructed at Indian Trail in Piqua, Ohio. A vicinity map (Figure 1) is included in Section III of this report. Our findings on the soil conditions and groundwater levels with respect to the potential construction problems, and recommendations for the allowable bearing capacity for the construction of the development site are given in this report.

Authorization to proceed with this soil study was given by RDA Group Architects in a signed proposal acceptance sheet dated October 21, 2025. The work was to proceed in accordance with our proposal and agreement, Quotation No. 25-312-096 dated October 9, 2025.

The draft soil boring logs and preliminary foundation recommendations were emailed to Mr. Jonathan Schaaf on February 5, 2026.

2.0 WORK PERFORMED

2.1 Field Work

Thirty (30) soil borings were made at the locations shown on the boring location plan, Figure 2 in Section III. The boring logs and boring location plan are included in Section III. The borings were made with an ATV boring rig using hollow-stem augers and standard penetration resistance methods. The standard penetration tests were performed in accordance with ASTM D1586, which includes a 140-pound hammer, 30-inch drops, and two-inch-O.D. split-spoon samplers driven at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the Bowser-Morner, Inc. laboratory for study. The depths where these "SS"-type split-spoon samples were collected are noted on the corresponding boring logs.

2.2 Laboratory Work

Plasticity Testing: Four (4) Atterberg limits tests were performed in accordance with ASTM D4318 to determine the liquid and plastic limits on the most visibly plastic cohesive soil or as needed for soil classification. Plasticity testing is commonly performed to assess seasonal volume change potential of subsurface cohesive materials for use as structural fill and foundation support materials.

Moisture Contents: In addition, 94 moisture content determinations were made in accordance with ASTM D2216. The results of the laboratory tests are summarized in Table 2-1 and included in Section III of this report.

Table 2-1. Summary of Laboratory Test Results

Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
1	1.0 – 2.5	21.1			
	3.5 – 5.0	19.8	31	17	14
	6.0 – 7.5	13.3			
2	1.0 – 2.5	18.7			
	3.5 – 5.0	15.8			
	6.0 – 7.5	8.3			
	8.5 – 10.0	8.6			
3	1.0 – 2.5	7.5			
	3.5 – 5.0	16.5			
	8.5 – 10.0	8.9			
4	1.0 – 2.5	13.8			
	6.0 – 7.5	26.8			
	8.5 – 10.0	24.6			
5	1.0 – 2.5	11.9			
	3.5 – 5.0	25.7			
	6.0 – 7.5	19.4			
6	1.0 – 2.5	13.7			
	3.5 – 5.0	15.2			
	6.0 – 7.5	15.8			
7	1.0 – 2.5	24.4			
	3.5 – 5.0	15.9			
	6.0 – 7.5	18.1			
8	1.0 – 2.5	17.1			
	3.5 – 5.0	11.1			
	6.0 – 7.5	8.9			
9	1.0 – 2.5	27.9			
	3.5 – 5.0	13.4			
	6.0 – 7.5	12.9			
10	1.0 – 2.5	29.7			
	3.5 – 5.0	6.6			
	6.0 – 7.5	4.8			
11	1.0 – 2.5	13.0			
	3.5 – 5.0	11.2			
	6.0 – 7.5	11.5			
12	1.0 – 2.5	12.5			
	3.5 – 5.0	11.3			
	6.0 – 7.5	11.9			
13	1.0 – 2.5	23.3			

Table 2-1. Summary of Laboratory Test Results

Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
	3.5 – 5.0	20.6			
	6.0 – 7.5	17.4			
14	1.0 – 2.5	23.4			
	3.5 – 5.0	16.1	27	16	11
	6.0 – 7.5	12.7			
	8.5 – 10.0	11.6			
15	1.0 – 2.5	22.5			
	3.5 – 5.0	26.2			
	6.0 – 7.5	13.6			
16	1.0 – 2.5	21.7			
	3.5 – 5.0	17.5			
	6.0 – 7.5	12.4	21	13	8
	8.5 – 10.0	9.3			
17	1.0 – 2.5	20.6			
	3.5 – 5.0	14.0			
	6.0 – 7.5	10.7			
18	1.0 – 2.5	20.1			
	3.5 – 5.0	17.6			
	6.0 – 7.5	17.8			
19	1.0 – 2.5	13.0			
	3.5 – 5.0	12.6			
	6.0 – 7.5	8.9			
20	1.0 – 2.5	24.2			
	3.5 – 5.0	9.7			
	6.0 – 7.5	10.9			
21	1.0 – 2.5	21.8			
	3.5 – 5.0	11.3			
	6.0 – 7.5	10.7			
22	1.0 – 2.5	15.6			
	3.5 – 5.0	19.1			
	6.0 – 7.5	6.2			
23	1.0 – 2.5	21.7			
	3.5 – 5.0	19.1			
	6.0 – 7.5	6.6			
24	1.0 – 2.5	22.9			
	3.5 – 5.0	16.6			
	6.0 – 7.5	15.1			
25	1.0 – 2.5	23.0			

Table 2-1. Summary of Laboratory Test Results

Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
	3.5 – 5.0	15.4			
	6.0 – 7.5	7.4			
26	1.0 – 2.5	12.6			
	3.5 – 5.0	19.7			
	6.0 – 7.5	7.6			
27	1.0 – 2.5	19.4			
	3.5 – 5.0	17.2			
	6.0 – 7.5	20.2			
28	1.0 – 2.5	25.4			
	3.5 – 5.0	25.7	23	16	7
	6.0 – 7.5	10.7			
	8.5 – 10.0	8.9			
29	1.0 – 2.5	10.9			
	3.5 – 5.0	18.9			
	6.0 – 7.5	10.6			
30	1.0 – 2.5	26.1			
	3.5 – 5.0	14.9			
	6.0 – 7.5	19.3			

3.0 SOIL AND GROUNDWATER CONDITIONS

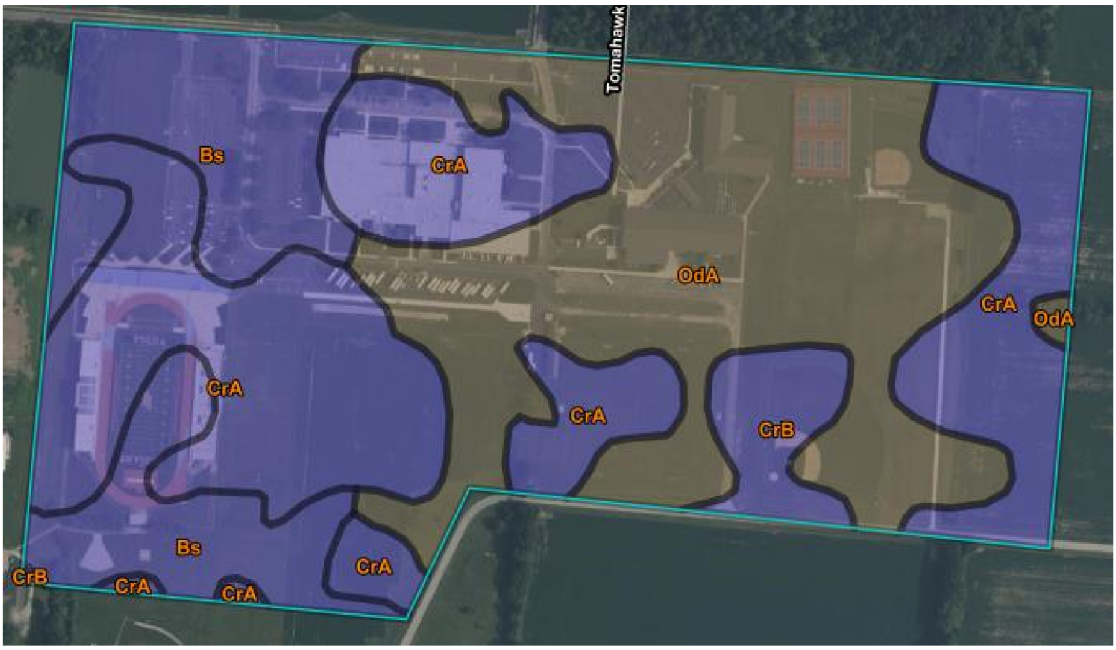
3.1 Geologic Soil Profile

Geologically, the sites are situated in Miami County which consists of Wisconsin Age glacial deposits which include glacial till, outwash, associated loess or silty windblown deposits, and lacustrine clays and silts. The bedrock in Miami County include the Dayton and Brassfield limestones of Silurian age and the Richmond group of Ordovician age.

The glacial soils in the vicinity of the site are what is known as glacial till, which tend to be fairly strong deposits consisting of mixtures of silt, clay, sand, gravel and coarser particles that were left behind once the glaciers retreated from the region. The Wisconsinan aged glacial tills at the site (loamy Wisconsin till) are shaded tan in the diagram below.

(References: Soil Explorer. Online at http://SoilExplorer.net. Accessed 02/13/2026.)

The diagram below illustrates the primary geologic surface layers of the property as mapped by the US Department of Agriculture. It indicates that there are four main variations of glacial drift on the property: Bs (Brookston silty clay, loam, fine texture, 0-2% slopes), CrA (Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes), CrB (Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes), and OdA (Odell silt loam, 0 to 2 percent slopes) The Bs, CrA, and CrB soils will exhibit more clay-like behavior, whereas the OdA will tend to behave more as silty soils.



3.2 Subsurface Conditions

Based on the information from the thirty borings made for this study, the subgrade soil conditions are described in descending order below:

STRATUM 1: TOPSOIL or UNDOCUMENTED FILL LAYERS: Encountered from Surface to depths of ±9.5 to ±8.0 feet.

Topsoil extending to a depth of between 9.5 and 12.0 inches. Topsoil consists of the semi-organic surface layer of soil that is often mixed with root matter and vegetative materials. Because the organic matter in this soil layer has a high potential for degradation and future volume change, it is not considered to be a reliable stratum for support of buildings or structures. Any surface layer with more than 4% organics (as a percentage of the total dry weight of the soil) should be considered topsoil and should be removed from use for structural fill purposes.

In Borings 4 and 26, undocumented and uncontrolled fill consisting of topsoil, and brown or gray-to-black sandy lean clay with trace-to some silt, broken wood, gravel, cobbles, and asphalt.

STRATUM 2: GLACIAL DRIFT: Encountered below stratum 1 to depths of between 3 to 13 feet or to the bottom of borings at 15 feet.

Soft-to-hard brown-to-dark brown or gray sandy lean clay. Interspersed within the layer are trace-to-some gravel, sand, or cobbles. The amount of silt also varies within the stratum. The stratum extends to a depth of between 3 and 13 feet, or to the bottom of the boring at a depth of 15 feet in Borings 3, 4, 8, 9, 11, 12, 13, 14, 15, 23, 24, 28, 29, and 30.

Note: The stratum was disrupted by a layer of medium dense brown sand with gravel between a depth of 8.5 and 13 feet in Boring 12 and 5.5 and 13 feet in Boring 23, loose brown sand with

silt between a depth of 5.5 and 13 feet in Borings 13 and 30, and between 8 and 13 feet in Boring 24.

STRATUM 3: GLACIAL OUTWASH: Encountered below stratum 2 from depths of between 3 and 13 feet to bottom of borings at 15 or 20 feet.

In Borings 1, 2, 5, 6, 7, 10, 16, 17, 18, 19, 20, 21, 22, 25, 26, and 27, loose-to-very dense brown or gray sand with gravel and medium dense-to-dense brown or gray sand or sand with silt. The layer extends to the bottom of all 16 borings at a depth below the existing grade of 20 feet in Boring 1, and at 15 feet in Borings 2, 5, 6, 7, 10, 16, 17, 18, 19, 20, 21, 22, 25, 26, and 27.

Free groundwater was encountered during the advancement of the borings at the depths and elevations summarized in Table 3-1.

Table 3-1. Summary of Groundwater Observations

Boring No.	Depth Groundwater First Observed (ft)		Groundwater Observations at Completion of Boring	
	Depth	Elevation*	Depth	Elevation*
1	8.0	936.2	13.0	931.2
2	8.0	937.8	9.5	936.3
3	No Water		No Water	
4	3.0	944.1	No Water	
5	No Water		No Water	
6	8.0	942.1	No Water	
7	13.0	940.2	10.0	943.2
8	No Water		No Water	
9	No Water		No Water	
10	8.0	943.1	No Water	
11	13.0	939.6	9.5	943.1
12	8.0	946.2	9.5	944.7
13	6.0	944.3	No Water	
14	No Water		No Water	
15	13.0	945.3	No Water	
16	13.0	958.4	10.0	961.4
17	13.0	959.8	10.5	962.3
18	No Water		No Water	
19	13.0	961.2	No Water	
20	13.0	959.7	No Water	
21	13.0	958.5	No Water	
22	8.0	960.4	8.5	959.9
23	No Water		No Water	
24	13.0	960.3	No Water	
25	13.0	960.3	No Water	

Table 3-1. Summary of Groundwater Observations

Boring No.	Depth Groundwater First Observed (ft)		Groundwater Observations at Completion of Boring	
	Depth	Elevation*	Depth	Elevation*
26	13.0	959.9	No Water	
27	8.0	958.9	9.0	957.9
28	No Water		No Water	
29	No Water		No Water	
30	No Water		No Water	

* In reference to surface elevation based on Ohio South State Plane Coordinate System.

Free groundwater is defined as water that seeps into an open borehole before it is backfilled. Groundwater observations were made during the boring operations by noting the depth of water on the boring tools and in the open boreholes following withdrawal of the boring augers. However, it should be noted that short-term water level readings are not necessarily a reliable indication of the groundwater level and that significant fluctuations may occur due to variations in rainfall and other factors. For specific questions on the soil conditions, please refer to the individual boring logs in Section III.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Project Description

The next phase of the Piqua High School/Junior High development will be constructed at Indian Trail in Piqua, Ohio. We understand that the proposed development will consist of athletic fields, accessory buildings, and an athletic facility. No design loading information was provided for this report.

Additionally, paved parking areas and drives will be constructed as part of this development. The final development plan of this property has yet to be finalized.

The final development plan of this property has yet to be finalized. This study is intended to determine the preliminary subgrade soil conditions to be used by others for the development considerations. No design loading information was provided. When the final development is available, Bowser-Morner should have an opportunity to review the development plan. We can provide a proposal to perform additional borings and laboratory tests and to prepare the final soil study report, if needed. The final report will provide the necessary data to be used by others for the design of the proposed buildings and parking pavement.

The following recommendations are based on this information. If the above statements are incorrect or changes are made, Bowser-Morner, Inc. should be notified so that the new data can be reviewed and additional recommendations and services can be given if required to meet the needs of your project.

4.2 Foundation Recommendations

4.2.1 Foundation Subgrade Preparation

Based on information from the 30 borings made at this site, the site is covered with undocumented and uncontrolled fill or topsoil and/or weak soil that extends to the approximate depths outlined in Table 4-1. Based on the results of the standard penetration tests (SPT) in the borings, the recommended net allowable bearing capacities and the depths to bearing strata at each boring are also tabulated in Table 4-1.

Table 4-1. Depths to Bottoms of Unreliable Soils

Boring No.	Depth to Bottom of Bearing Strata (ft)	Elevation* of Bearing Strata (ft)	Topsoil, Fill, and/or Weak Soil	Recommended Net Allowable Bearing Capacity (psf)
1	0.9	943.3	Topsoil	1,500
	8.5	935.7	Topsoil and Weak Soil	2,000
	18.5	925.7	Topsoil and Weak Soil	2,500
2	0.9	944.9	Topsoil	1,500
	6.0	939.8	Topsoil and Weak Soil	4,000
3	0.9	945.1	Topsoil	3,000
	6.0	940.0	Topsoil and Weak Soil	4,000
4	8.5	938.6	Fill	1,500
	13.5	933.6	Fill and Weak Soil	4,000
5	0.9	947.5	Topsoil	1,000
	13.5	934.9	Topsoil and Weak Soil	4,000
6	0.9	949.2	Topsoil	2,500
	6.0	944.1	Topsoil and Weak Soil	4,000
7	0.9	952.3	Topsoil	1,500
	8.5	944.7	Topsoil and Weak Soil	3,000
	13.5	939.7	Topsoil and Weak Soil	4,000
8	0.9	953.6	Topsoil	4,000
9	0.9	954.1	Topsoil	2,000
	3.5	951.5	Topsoil and Weak Soil	3,000
	6.0	949.0	Topsoil and Weak Soil	4,000
10	0.9	950.2	Topsoil	1,000
	6.0	945.1	Topsoil and Weak Soil	3,000
	8.5	942.6	Topsoil and Weak Soil	4,000
11	0.9	951.7	Topsoil	3,000
	3.5	949.1	Topsoil and Weak Soil	3,500
	13.5	939.1	Topsoil and Weak Soil	4,000
12	0.9	953.3	Topsoil	2,500
	8.5	945.7	Topsoil and Weak Soil	4,000
13	0.9	949.4	Topsoil	1,500
	8.5	941.8	Topsoil and Weak Soil	4,000
14	0.9	950.5	Topsoil	1,500

	6.0	945.4	Topsoil and Weak Soil	2,000
	8.5	942.9	Topsoil and Weak Soil	3,500
	13.5	937.9	Topsoil and Weak Soil	4,000
15	1.0	937.9	Topsoil	1,500
	6.0	957.3	Topsoil and Weak Soil	4,000
16	0.9	970.5	Topsoil	2,500
	6.0	965.4	Topsoil and Weak Soil	3,500
	8.5	962.9		4,000
17	0.9	971.9	Topsoil	2,500
	3.5	969.3	Topsoil and Weak Soil	4,000
18	0.9	973.0	Topsoil	2,000
	3.5	970.4	Topsoil and Weak Soil	4,000
19	0.9	973.3	Topsoil	2,500
	3.5	970.7	Topsoil and Weak Soil	4,000
20	0.9	971.8	Topsoil	2,500
	3.5	969.2	Topsoil and Weak Soil	4,000
21	0.9	970.6	Topsoil	3,000
	3.5	968.0	Topsoil and Weak Soil	4,000
22	0.9	967.5	Topsoil	1,500
	8.5	959.9	Topsoil and Weak Soil	3,000
	13.5	954.9	Topsoil and Weak Soil	4,000
23	0.9	971.3	Topsoil	2,500
	6.0	966.2	Topsoil and Weak Soil	4,000
24	0.9	972.4	Topsoil	2,000
	13.5	959.8	Topsoil and Weak Soil	4,000
25	0.9	972.4	Topsoil	2,000
	3.5	969.8	Topsoil and Weak Soil	3,500
	13.5	959.8	Topsoil and Weak Soil	4,000
26	3.0	969.9	Fill	3,000
	8.5	964.4	Fill and Weak Soil	4,000
27	0.9	966.0	Topsoil	3,000
	3.5	963.4	Topsoil and Weak Soil	4,000
28	1.0	971.0	Topsoil	1,000
	6.0	966.0	Topsoil and Weak Soil	4,000
29	0.9	971.9	Topsoil	1,000
	6.0	966.8	Topsoil and Weak Soil	4,000
30	0.9	974.4	Topsoil	1,000
	3.5	971.8	Topsoil and Weak Soil	4,000

*In reference to surface elevation based on Ohio South State Plane Coordinate System.

Within the construction limits of any structure, the fill or topsoil and/or the weaker soil can be removed to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1 and replaced with compacted backfill. The topsoil can be stockpiled

for landscaping purposes. Any sizable roots and tree stumps should also be removed and wasted.

The bottoms of the foundation excavations should extend to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1. After the foundation excavations extend to the suitable depths, the over-excavation can be filled with compacted backfill. The bottoms of exterior footing foundations should be placed at least 32 inches below the final adjacent grades to protect against frost penetration and heaving for heated structures. For non-heated structures, the bottoms of exterior footing foundations should be placed at least 36 inches below the final adjacent grades to protect against frost penetration and heaving. Interior footings not subject to frost action may bear at a minimum depth of 18 inches below the floor slab if they are supported on original materials or compacted fill placed in accordance with our recommendations.

The base of each excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. If an excavation will extend more than five feet below the existing grade, a maximum allowable side slope of 1 (horizontal) to 1 (vertical) should be maintained in any excavation for stability and for the safety of the workers.

After the foundation excavations extend to the desired grade, the top foot at the bottom of each excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or foundation is placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Any lean clay soils to be imported as backfill or removed from the project site probably will have significantly different Proctor values. Consequently, samples to be tested by the Proctor method should be obtained from a representative area and from the same elevation as the design subgrade.

After the bottoms of the excavations have been compacted, structural fill can be placed to bring the bottoms of the excavations to reach the desired final grade. The fill placed below the bottom of the footing foundations should be placed in eight-inch-thick lifts and compacted to at least 95% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottom of the footing foundations to serve as the subgrade for the floor slab should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557 Structural fill should be placed in accordance with the recommendations given in Section 4.4.

The footing foundations for any structure can be supported on the original subgrade soil or newly compacted backfill extending to the depths outlined in Table 4-1. The foundations can be designed with the corresponding net allowable bearing capacities outlined in Table 4-1. For these recommended allowable bearing capacities outlined in Table 4-1 for the original soil layer or for the newly compacted backfill, the total estimated amount of settlement of the foundations will be about one inch with differential settlement of about 3/4 inch over a distance of 40 feet.

The soil removed from this site that is free of organic or objectionable materials as defined by a field technician who is qualified in soil material identification and compaction procedures can be reused as fill. Objectionable or undesirable soils are defined as those materials that cannot meet design placement specifications or materials that will deteriorate with time.

When determining the geometric size (the "footprint") of the footing foundation, the total system loads applied to the tops of the foundations should be considered in the bearing pressure calculations.

The bearing capacities recommended in Table 4-1 for foundations supported on structural fill applies to well-graded granular soils, low-to-medium plastic clays, clayey sands, and some silty sands that are placed and compacted in accordance with the recommendations given in this report. However, uniformly graded or gap-graded granular soils (GP or SP), silts (ML), silty fine sands (SM), and high plasticity clays (CH) will be difficult to place and compact, and may result in a reduced bearing capacity. If these soils will be used as backfill, Bowser-Morner should be notified before the soils are placed so that the proposed placement methods and bearing capacity recommendations can be reviewed.

The bearing capacity of a soil is not a unique physical property of the soil. Instead, it depends explicitly on several factors including the footing type, size, and shape; the depth of embedment; the eccentricity and inclination of the applied load; the footing base inclination; the stiffness of the footing; the proximity of the footing to open cuts or slopes; the relative distance between the bottom of the footing and the water table; and the allowable amounts of settlement. The recommended allowable bearing capacity is based on the foundation design parameters given above and the assumptions that the applied load is vertical with no eccentricity, the base is horizontal and level, the footing is rigid, the footing is not close to an open cut or slope, and the water table is below the bottom of footing. If the actual conditions vary from the parameters and assumptions stated above, Bowser-Morner should be notified so that the new information can be reviewed and additional recommendations and services can be given to meet the needs of your project.

Foundations supported on soil settle as the result of externally applied loads. While the foundations should be expected to settle, the amount of settlement should be within the tolerable limits for the structures.

Alternatively, the weaker soil can remain in-place. The weak subgrade soil can be modified by installing Geopiers® for the construction of the structures. The Geopier® method is a patented method that includes the placement and the compaction of sand and gravel in pre-augered holes. With this method, the sand and gravel fill will be compacted in lifts using a drop hammer. The Geopiers® will be constructed in a pre-set pattern.

The structures can simply be supported on spread-footing foundations over the Geopier®-improved subgrade soil. The floor slab on-grade also can be supported over the Geopier®-improved subgrade soil. The spacing for the Geopiers® to be installed beneath the floor slabs on-grade will be much wider than the support for the foundations. If the Geopier®

method is selected, the Geopier® Foundation Company, Inc. will perform the design of the Geopier® system including the spacing of the piers and the allowable bearing capacity on top of the Geopiers®.

The footing foundations supported on the Geopier®-improved subgrade can be designed with the allowable bearing capacity specified by the Geopier® Foundation Company, Inc. Based on our experiences with other projects, the allowable bearing capacities are about 3,000 to 5,000 pounds per square foot (psf) with Geopier® modified subgrade soil for these type of projects.

In general, for the selection or the installation of any type of aggregate piers, the compaction performed with a hammer should provide vertical impact to the granular fill. Each lift of aggregate should be equal to or less than 36 inches thick and should be placed starting from the bottom of the hole.

If stone-column methods other than the Geopier® method are selected, the compaction of the stone columns should be verified with a dynamic cone-penetration test through the aggregate piers. The "N" values can be obtained continuously through the full length of the aggregate piers. After the tests are completed and the aggregate is still loose, the piers should be recompacted using the installer's equipment. Based on our experience with other projects, a top-feed method of placing the granular material with a vibration device in the open hole cannot achieve the required compaction. The top-feed method with a vibration device is not acceptable and cannot be considered as equal to the Geopiers®.

The Geopier® Foundation Company, Inc. will design the Geopiers® including the length, diameter, and spacing of the piers and the allowable bearing capacities of the improved subgrade soil or with foundations supported directly on top of the piers. If the Geopier® subgrade-improvement method with a displacement mandrel will be used, temporary steel casings will not be needed to extend through the existing fill and weak soil to keep the shafts from caving in. If the Geopier® subgrade-improvement method will be considered, we can contact and provide our study to Geopier® Foundation Company, Inc. on behalf of the client to obtain a preliminary cost estimate for this project.

4.2.2 Lateral Earth Pressure for Below-Grade Wall Design

Any perimeter below grade walls should be designed as retaining walls to resist the lateral earth pressure. Free-draining granular materials should be placed behind the perimeter below grade walls. Water should not be allowed to accumulate behind the walls. With the retaining walls to be backfilled with free-draining granular backfill, an "at-rest," lateral earth-pressure coefficient of 0.5 should be used to determine the lateral earth pressure against the walls. A lateral soil pressure of 63 pounds per square foot per foot depth can be used in the design of the walls. If water will be allowed to accumulate behind the walls, a static water pressure of 62.4 psf per foot depth should be added onto the design lateral pressure against the walls. The design of the below-grade walls is beyond the scope of the study.

4.2.3 Site Classification For Seismic Design

Based on the results of the standard penetration tests (SPT) in the borings made in the proposed development areas, the average "N" value is 18 blows per foot for the soil layer within 15 to 20 feet of the existing grade. Based on the results of the average "N" value, it is our opinion that the site will be classified as a "D" type in accordance with the *Ohio Building Code*.

4.3 Slabs On-Grade

The soils at the depths and elevations on the first line for each boring, outlined in Table 4-1, are not reliable to support any floor slab on-grade due to the potential for settlement. We recommend that the unreliable soils be removed from beneath the floor slab areas and that the exposed ground surface be compacted as outlined above for the foundations. The floor slabs on-grade can be supported on compacted fill placed in accordance with the recommendations given above or on the Geopier improved subgrade. We recommend that the upper four to six inches of compacted fill be a well-graded, angular, granular material such as crushed sand with gravel or crushed stone. To help distribute concentrated loads and equalize moisture conditions under the slabs, this granular material should contain less than 5% of fines or particles that can pass through a No. 200 sieve.

Topsoil, fill, and/or other deleterious materials encountered during the site preparation must be removed and replaced with select engineered fill that is compacted to the specifications outlined in this report.

We recommend that slabs on-grade "float" by being fully supported on the ground and not structurally connected to walls or foundations. Floating will minimize the possibility of cracking and displacement of the slabs on-grade as a result of differential movements between the slab and the foundations. Although the movements should be within the tolerable limits for structural safety, such movements could be detrimental to the slabs if they were rigidly connected to the foundations.

4.4 Compaction Requirements

Structural fill placed below the foundation bearing elevation should be compacted to at least 95% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottoms of the foundations or under pavement areas should be compacted to at least 90% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). The compaction should be accomplished by placing the fill in successive, horizontal, approximately six- to eight-inch-thick loose lifts and mechanically compacting each lift to at least the specified minimum dry density. Field density tests should be performed at a minimum rate of one per 2,500 square feet of fill area and for each lift to verify that adequate compaction is achieved. Backfill for utility trenches, foundation excavations, etc., within structures or paved areas, is considered structural fill and should be placed in accordance with these recommendations.

It must be emphasized that the excavation and compaction of soil fill are highly influenced by weather conditions. Performing the earthwork under wet and frozen conditions is generally very difficult. As a result, compaction of wet silty and clayey soil should be avoided during wet and frozen conditions because the wet soil cannot be compacted to the required unit weight without drying or other soil stabilization methods. Alternatively, granular soil can be used as backfill to facilitate the backfill and compaction work during winter and wet weather conditions. The construction cost during the winter and wet weather conditions will be higher by the purchase of granular soil from the sand and gravel pits.

Puddling or jetting of the backfill material, including the utility trenches, should not be allowed as a compaction method. Silty or clayey soils encountered above foundation depth will often soften, and the bearing capacity may be reduced if water ponds in the excavation.

Lean concrete that is placed below the bottom of foundation should have a minimum 28-day compressive strength of 2,000 pounds per square inch (psi).

4.5 Foundation Excavations

During the foundation excavations, the subsurface conditions should be verified. Changes in subsurface conditions other than what are shown on the boring logs warrant additional subsurface investigation before any structure foundations are constructed.

The foundation excavations should be observed to ensure that the loose, soft, or otherwise undesirable materials are removed and that the foundations will be supported directly on an acceptable surface. At the time of this observation, it may be necessary to use a hand penetration device in the base of the foundation excavation to ensure that the soils immediately below the foundation base are satisfactorily prepared to support the foundations. Please note that such shallow observations do not replace an adequate deep-boring program and structural fill compaction QA/QC records. The overall performance of the foundations is governed by the soils below the bottom of the footing foundation.

If pockets of soft, loose, or otherwise unsuitable materials are encountered in the footing excavations and it is inconvenient to lower the footings, the proposed footing elevations may be reestablished by backfilling after the undesirable materials have been removed. The excavation under each footing should extend to suitable soils, and the base of the excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. The entire excavation should then be refilled with well-compacted, engineered fill. Special care should be taken to remove the sloughed, loose, or soft materials near the base of the excavation slopes. Extra care should also be taken to tie-in the compacted fill with the excavation slopes, with benches as necessary, to ensure that no pockets of loose or soft materials are left along the excavation slopes below the foundation bearing level. The contractor should maintain temporary cut slopes in accordance with the current OSHA regulations governing trenching and slope stability.

Soils exposed at the bases of satisfactory foundation excavations should be protected against any detrimental change in condition such as from construction disturbances, rain, and freezing. Surface runoff should be drained away from the excavation and not allowed to pond. If possible, foundation concrete should be placed the same day the excavation is made. If this is not practical,

the foundation excavations should be adequately protected. Also, for this reason, proper drainage should be maintained after construction. It must be emphasized that all excavations must conform to all state, federal, and local regulations relative to slope geometry.

4.6 Consideration of Subgrade for Athletic Fields

We understand that new athletic fields will be constructed as part of this project. Based on the information from the borings performed, the site is covered by a layer of undocumented and controlled fill or topsoil that extends to the approximate depths and elevations outlined in the first line of Table 4-1.

If an artificial turf will be installed in the proposed athletic fields, the preparation of the subgrade for the artificial turf should be performed in accordance with the specifications provided by the manufacturer of the turf. Based on our experience with the preparation of subgrade to support any field playing surface, the following general recommendations can be adopted. Any pavements and/or topsoil encountered within the synthetic turf areas should be removed and replaced with compacted fill. The topsoil should be wasted, or stockpiled for landscaping purposes.

After the fill or topsoil has been removed and any ground surface in the proposed turf areas that is higher than the proposed subgrade has been re-graded, the top foot of the subgrade soil layer at the bottom of the excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or subgrade is placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Verification of the subgrade will have to be performed during the re-compaction of the top of the stripped ground surface. A soil technician under the supervision of the geotechnical engineer should be on-site to observe the compaction. Any additional backfill to be placed over the recompacted ground surface to support the granular base should be placed in eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557).

Any weak or loose soil layer encountered during the re-compaction of the subgrade soil layer should be undercut and replaced with newly compacted backfill. Any thin layer of soft clay can be scarified and recompacted to achieve the density to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test. The recompacted subgrade should be firm with the deflection less than 1/2 inches under the compaction equipment.

Any additional subgrade fill, which is needed to reach the final proposed subgrade, can be placed and compacted to bring the ground to the desired grade, if needed. The newly placed fill should be placed in horizontal eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content by the modified Proctor method (ASTM D1557). The field subgrade and synthetic turf layer can be supported on the newly compacted soil or on the recompacted subgrade.

During the construction phase of the project, the compacted subgrade soil should be protected against any detrimental change in condition such as from disturbances, rain, and freezing. The ground surface around the shoulder of the field should slope away from the field so that surface

runoff is not allowed to pond next to the field. Adequate drainage should be provided at the site to avoid an increase in moisture content of the subgrade soils during and after construction.

4.7 Construction Dewatering

At the time of our study, free groundwater was encountered in Borings 1, 2, 4, 6, 7, 10, 11, 12, 13, 15, 16, 17, 19, 20, 21, 22, 24, 25, 26, and 27 at depths of 3.0 to 13.0 feet below the existing grade as outlined in Table 3-1. No free groundwater was encountered in the rest of the borings during the boring operations. Any groundwater and surface water infiltration encountered in the excavations during construction should be lowered to the bottom of the excavation in silt and clay soils and should be lowered to at least three feet below the bottom of the maximum excavation in the sand and gravel layers using sumps and pumps. Sumps can consist of perforated pipes or drums installed vertically in the relatively permeable granular soils and surrounded with free-draining sand and gravel. The perforations of the pipe should be covered with a layer of filter fabric to keep silt and fine sand from pumping through the sumps. Care must be exercised when pumping from sumps that extend into silts or other granular soils since general deterioration of the bearing soils and a localized "quick" condition could result. The groundwater should be kept at a level below the fill operation during the placement and compaction of the backfill materials during the construction of the building foundation.

For the installation of Geopiers®, any groundwater seepage should be considered. If groundwater is encountered, casings may be needed to keep the shafts from caving in the open holes.

The amount and type of dewatering required during construction will depend on groundwater levels at the time of construction. Typically, groundwater levels are highest during winter and spring, and lower in summer and early fall.

4.8 Drainage

Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation soils during and after construction. The exterior grade including all pavements or parking areas should be sloped away from the new foundations to keep water from ponding. All drains should provide positive discharge away from the structures.

4.9 Pavement Recommendations

4.9.1 Pavement Subgrade Preparation Recommendations

Paved parking areas and drives will be constructed as part of this development. Based on information from the borings performed in the area, any proposed pavement areas is covered by fill or topsoil that extends to the depths outlined in the first line of the relevant boring on Table 4-1.

The fill, topsoil, roots, and stumps in any proposed pavement areas should be removed. The topsoil can be stockpiled for landscaping purposes. After the topsoil has been removed and any ground surface in the pavement areas that is higher than the proposed subgrade has been re-graded, the top foot of the subgrade soil layer at the bottom of the excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or subgrade is

placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Verification of the subgrade will have to be performed during the re-compaction of the top of the stripped ground surface. A soil technician under the supervision of the geotechnical engineer should be on-site to observe the compaction. Any additional backfill to be placed over the recompacted ground surface to support the granular base should be placed in eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557).

Any weak or loose soil layer encountered during the re-compaction of the subgrade soil layer should be undercut and replaced with newly compacted backfill. Any thin layer of soft clay can be scarified and recompacted to achieve the density to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test. The recompacted subgrade should be firm with the deflection less than 1/2 inches under the compaction equipment.

Any additional subgrade fill, which is needed to reach the final proposed subgrade, can be placed and compacted to bring the ground to the desired grade, if needed. The newly placed fill should be placed in horizontal eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content by the modified Proctor method (ASTM D1557). The granular base can be supported on the newly compacted soil or on the recompacted subgrade.

Silty or clayey soil at subgrade depth will tend to degrade quickly under construction traffic when wet. Degradation of the wet subgrade soils will result in a reduced support value. For this reason, all of the exposed subgrade should be graded to drain and should be protected against any detrimental change in condition such as from disturbances, rain, and freezing. The ground surface near the pavement area should slope away from the car parking lot so that surface runoff is not allowed to pond next to the pavement area. Adequate drainage should be provided at the site to avoid an increase in moisture content of the subgrade soils during and after construction.

4.9.2 Pavement Design Recommendations

Based on the results of the laboratory tests, the subgrade soils on the sites can be classified as A-4 and A-6 types in accordance with the AASHTO Soil Classification System. Our experience has been that the long-term performance records of these types of soils are less than what are predicted by standard design charts. For this reason, after this type of subgrade soil is compacted to 90% of the maximum dry unit weight as determined by the modified Proctor test, a California Bearing Ratio (CBR) value of 3 can be assigned for the pavement design. An equivalent soil support value (SSV) of 2.4 can be used for the asphalt pavement design, and a modulus of subgrade reaction (k) of 90 pci can be used for the concrete pavement design.

The pavement sections outlined in Table 4-2 are recommended only for car parking areas that will accommodate traffic with a gross vehicle weight of less than 4,000 pounds. The projected traffic counts and vehicular loading data were not provided. As a result, the pavement recommendations are only intended for low-impact areas, such as parking areas and driving lanes, where only lightweight passenger cars are anticipated.

Table 4-2. Recommended Car Parking Pavement Sections

Pavement Component	Alternative Pavement Sections (inches) #1	#2	#3
448 Asphalt Concrete Surface Course, Type	3	2	--
301 Asphalt Concrete	--	3	--
304 Granular Base	8	6	6
Portland Cement Concrete	--	--	3-1/2

One additional inch of asphalt concrete or Portland cement concrete should be placed in the driving lanes in the car parking areas and in the proposed driveways to handle the channelized traffic conditions. We recommend that a Portland cement concrete pavement be used in front of trash bins and within any truck loading dock area to handle the large start-and-stop loads imposed by the heavy truck traffic.

Several items should be carefully considered during the selection of a final design cross section. These factors are:

A. A tack coat should be applied between layers of bituminous concrete.

B. The paved area should have a slope of at least 1.5% for adequate drainage. The base material and/or surface of the subgrade should be allowed to drain through holes in the catch basins or through the shoulders. No undrained granular fill area, including the utility trenches and base course, should be allowed.

C. Before paving, the entire area should be thoroughly compacted or recompacted to a dry unit weight of 90% of the maximum modified Proctor value at no more than 2% over the optimum moisture content.

5.0 CLOSURE

5.1 Basis of Recommendations

The evaluations, conclusions, and recommendations in this report are based on our interpretation of the field and laboratory data obtained during the exploration, our understanding of the project and our experience with similar sites and subsurface conditions. Data used during this exploration included, but were not necessarily limited to:

- Thirty exploratory borings performed during this study.
- Observations of the project site by our staff.
- The results of the laboratory soil tests.
- The site plan provided by RDA Group Architects.
- Limited interaction with Mr. Jonathan Schaaf, Principal, Sr. Project Architect of RDA Group Architects.

- Published soil or geologic data of this area.

In the event that changes in the project characteristics are planned, or if additional information or differences from the conditions anticipated in this report become apparent, Bowser-Morner, Inc. should be notified so that the conclusions and recommendations contained in this report can be reviewed and, if necessary, modified or verified in writing.

5.2 Limitations and Additional Services

The subsurface conditions discussed in this report and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. Although individual test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as anticipated by designers, or that the construction process has altered the soil conditions. As variations in the soil profile are encountered, additional subsurface sampling and testing may be necessary to provide data required to reevaluate the recommendations of this report. Consequently, after submission of this report, it is recommended that Bowser-Morner, Inc. be authorized to perform additional services to work with the designer(s) to minimize errors and omissions regarding the interpretation and implementation of this report.

Before construction begins, we recommend that Bowser-Morner, Inc.:

- Work with the designers to implement the recommended geotechnical design parameters into plans and specifications.
- Consult with the design team regarding interpretation of this report.
- Establish criteria for the construction observation and testing for the soil conditions encountered at this site.
- Review final plans and specifications pertaining to geotechnical aspects of design.

During construction, we recommend that Bowser-Morner, Inc.:

- Observe the construction, particularly the site preparation, fill placement, and foundation excavation or installation.
- Perform in-place density testing of all compacted fill.
- Perform materials testing of soil and other materials as required.
- Consult with the design team to make design changes in the event that differing subsurface conditions are encountered.

If Bowser-Morner, Inc. is not retained for these services, we shall assume no responsibility for construction compliance with the design concepts, specifications or recommendations.

5.3 Warranty

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

The scope of this study did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, within or beyond the site studied. Any statements in the report or on the boring logs regarding odors, staining of soils or other unusual items or conditions observed are strictly for the information of our client.

To evaluate the site for possible environmental liabilities, we recommend an environmental assessment, consisting of a detailed site reconnaissance, a record review, and report of findings. Additional subsurface drilling and sampling, including groundwater sampling, may be required. Bowser-Morner, Inc. can provide this service and would be pleased to provide a cost proposal to perform such a study, if requested.

This report has been prepared for the exclusive use of RDA Group Architects for specific application to the development site on Indian Trail in Piqua, Ohio (see Figure 1 in Section III of this report). Specific design and construction recommendations have been provided in the various sections of the report. The report shall therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. Bowser-Morner, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Section II

Specifications

CLEARING AND GRADING SPECIFICATIONS

I. GENERAL CONDITIONS

The contractor shall furnish all labor, materials, and equipment, and perform all work and services necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, removal of existing structures unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the constant and continuous supervision of the Owner or his designated representative.

In these specifications the terms "approved" and "as directed" shall refer to directions to the Contractor from the Owner or his designated representative.

II. SUBSURFACE CONDITIONS

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work. Borings and/or soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the Owner can investigate the condition.

III. SITE PREPARATION

Within the specified areas, all trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed and disposed of.

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

Prior to the addition of fill, the original ground shall be compacted to job specifications as outlined below. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

IV. FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch lose lifts.

All material entering the fill shall be free of organic matter such as leaves, grass, roots, and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the disced area.

Compaction operations shall be continued until the fill is compacted to not less than 90% above foundation elevation and 95% below foundation elevation, of the maximum density as determined in accordance with the latest ASTM D-1557 (Modified). Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. If directed, original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall begin on the lowest bench, with the fill being placed in horizontal eight (8) inch loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper

drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the areas. Stones or fragmentary rock larger than four (4) inches in their greatest dimensions will not be allowed in the fill unless specifically authorized in writing. Rock fill shall be brought up in layers as specified or as directed, and every effort shall be exerted to fill the voids with the finer material to form a dense, compact mass. Rock or boulders shall be disposed of as deleterious material per Item III.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills made under the contract, and shall replace any portion, which in the opinion of the Owner or his designated representative, has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

V. SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, and storm water shall not be drained over the slopes.

VI. GRADING

The Contractor shall furnish, operate, and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

VII. COMPACTING

The compaction equipment shall be approved equipment of such design, weight, and quantity to obtain the required density in accordance with these specifications.

VIII. TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.

IX. SPECIAL CONDITIONS

Section III

Boring Log Terminology, Boring Logs, Laboratory Data, And Prints

BORING LOG TERMINOLOGY

Stratum Depth:

Distance in feet and/or inches below ground surface.

Stratum Elevation:

Elevation in feet below ground surface elevation.

Description of Materials:

Major types of soil material existing at boring location. Soil classification based on one of the following systems: Unified Soil Classification System., Ohio State Highway Classification System, Highway Research Board Classification System, Federal Aviation Authority Classification System, Visual Classification.

Sample No.:

Sample numbers are designated consecutively, increasing with depth for each boring.

Sample Type:

"A" Split spoon, 2" O.D., 1-3/8" I.D., 18" in length.

"B" Rock Core

"C" Shelby Tube 3" O.D. except where noted

"D" Soil Probe

"E" Auger Cuttings

"F" Sonic

Sample Depth:

Depth below top of ground at which appropriate sample was taken.

Blows per 6" on Sampler:

The number of blows required to drive a 2" O.D., 1-3/8" I.D., split spoon sampler, using a 140 pound hammer with a 30-inch free fall, is recorded for 6" drive increments. (Example: 3/8/9).

"N" Blows/Ft.:

Standard penetration resistance. This value is based on the total number of blows required for the last 12" of penetration. (Example: 3/8/9: N = 8 + 9 = 17)

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Water Observations:

Depth of water recorded in test boring is measured from top of ground to top of water level. Initial depth indicates water level during boring, completion depth indicates water level immediately after boring, and depth after "X" number hours indicates water level after letting water rise or fall over a time period. Water observations in pervious soil are considered reliable ground water levels for that date. Water observations in impervious soils can not be considered accurate ground water measurements for that date unless records are made over several days' time. Factors such as weather, soil porosity, etc., will cause the ground water level to fluctuate for both pervious and impervious soils.

SOIL DESCRIPTION

Color:

When the color of the soil is uniform throughout, the color recorded will be such as brown, gray, or black and may be modified by adjectives such as light and dark. If the soil's predominant color is shaded by a secondary color, the secondary color precedes the primary color, such as: gray-brown, yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled, such as: mottled brown and gray.

Particle Size		Visual
Boulders		Larger than 8"
Cobbles		8" to 3"
Gravel	– Coarse	3" to 3/4"
	– Fine	2 mm. To 3/4"
Sand	– Coarse	2 mm. – 0.6 mm. (Pencil lead size)
	– Medium	0.6 mm. – 0.2mm. Table sugar and salt size)
	– Fine	0.2 mm. – 0.06 mm. (Powdered sugar and human hair size)
Silt		0.06 mm. – 0.002 mm.
Clay		0.002 and smaller (Particle size of both Silt and Clay not visible To naked eye

Soil Components

Major Component:	Minor Component Term
Gravel	Trace 1-10%
Sand	Some 11-35%
Silt	And 36-50%
Clay	

Moisture Content

Term	Relative Moisture
Dry	Powdery
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit but below liquid limit
Wet	Moisture content Above liquid limit

Condition of Soil Relative to Compactness Granular Material

Very Loose	5 blows/ft. or less
Loose	6 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	30 to 50 blows/ft.
Very Dense	51 blows/ft. or more

Condition of Soil Relative to Consistency Cohesive Material

Very Soft	3 blows/ft. or less
Soft	4 to 5 blows/ft.
Medium Stiff	6 to 10 blows/ft.
Stiff	11 to 15 blows/ft.
Very stiff	16 to 30 blows/ft.
Hard	31 blows/ft. or more

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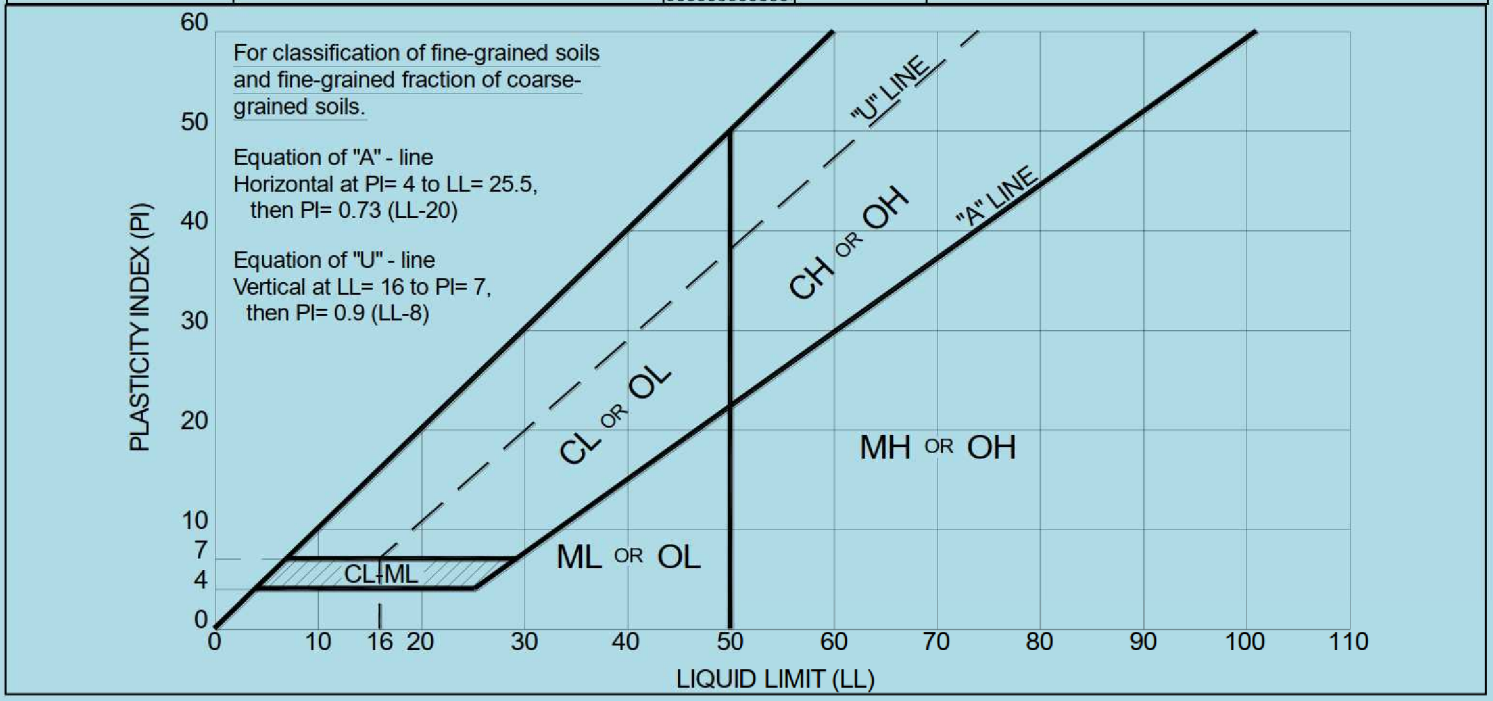
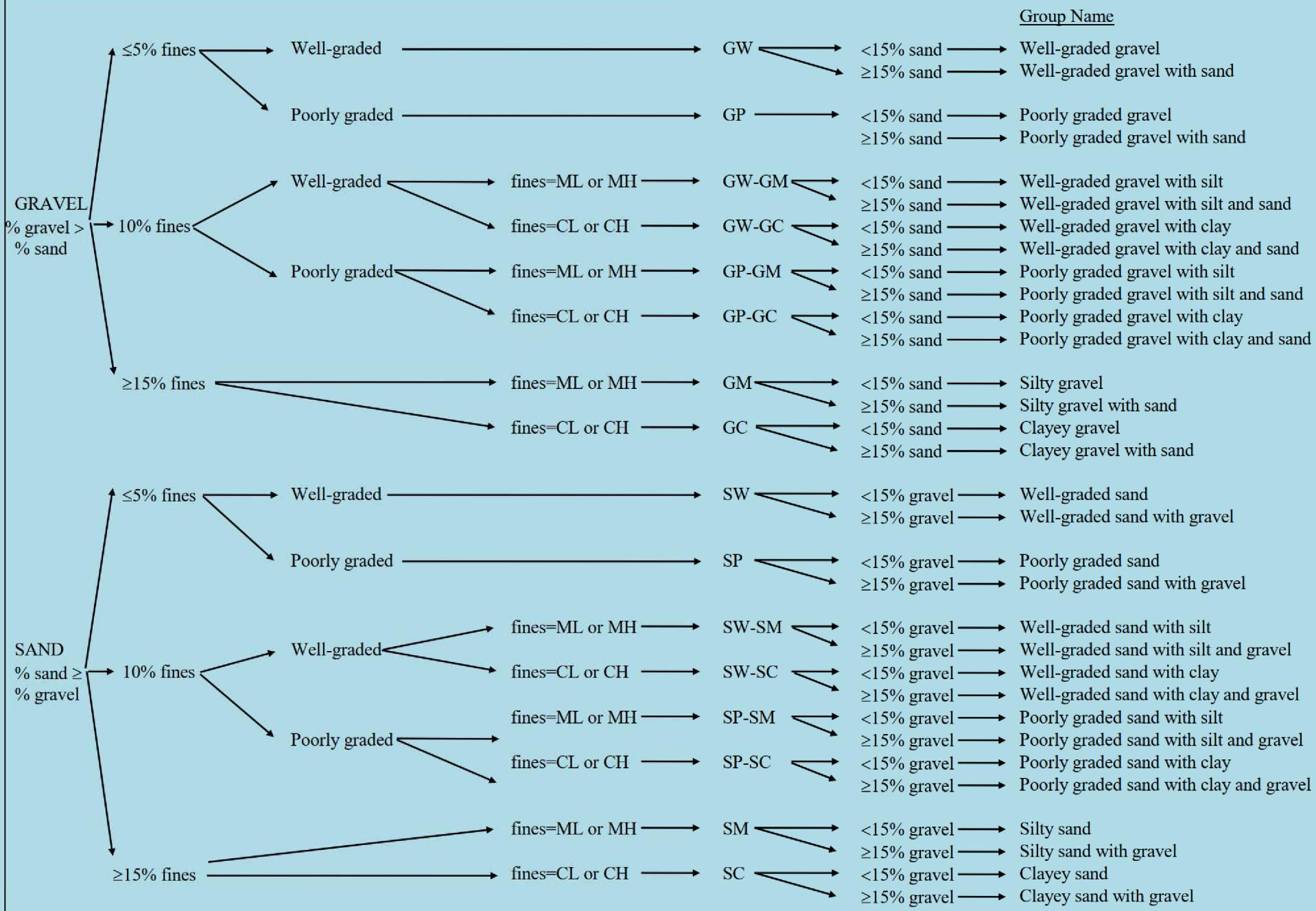
UNIFIED CLASSIFICATION SYSTEM

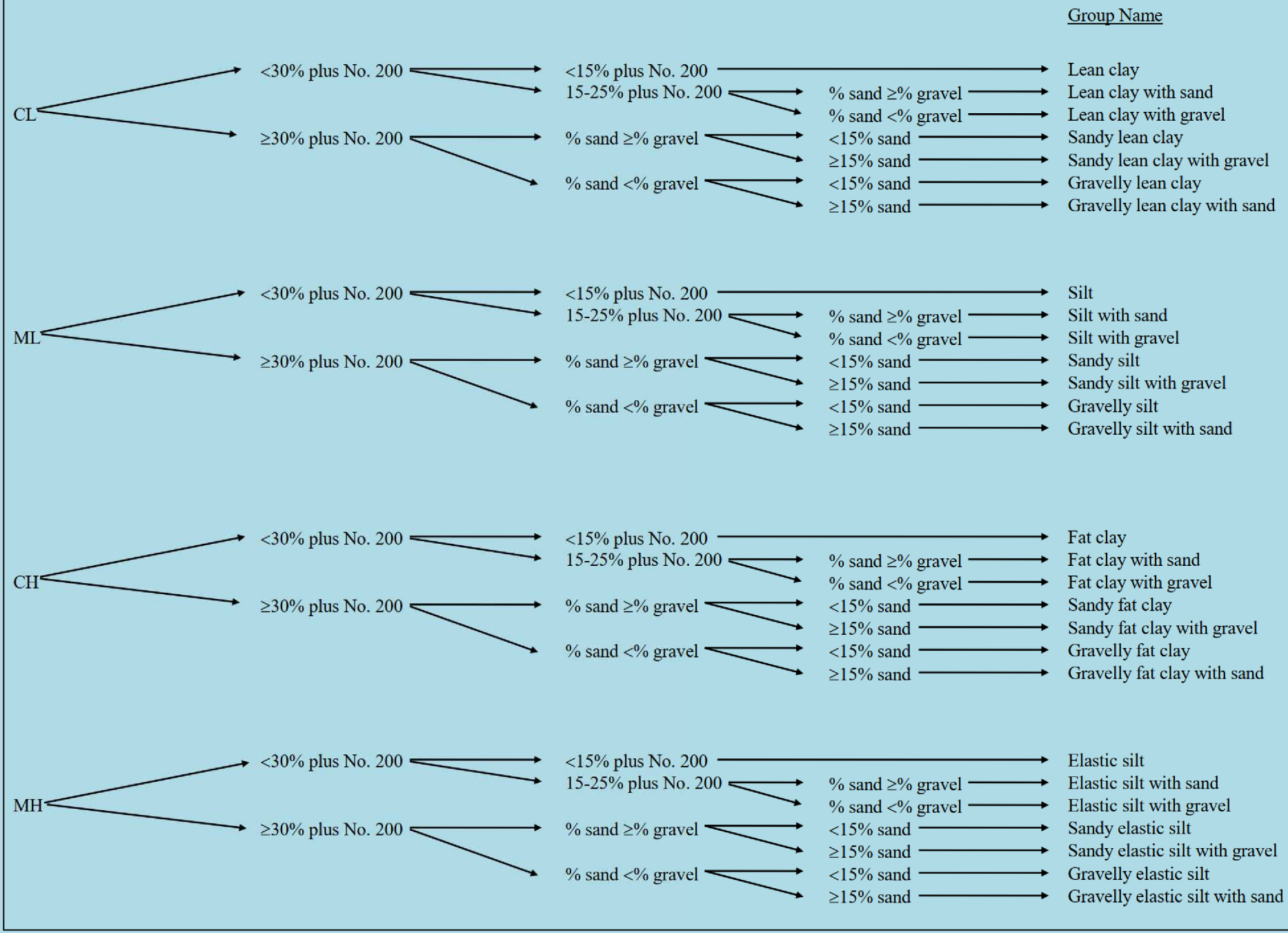
MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVEL WELL-GRADED GRAVEL WITH SAND
				GP	POORLY GRADED GRAVEL POORLY GRADED GRAVEL WITH SAND
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES APPRECIABLE AMT. OF FINES)		GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
				GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SAND WELL-GRADED SAND WITH GRAVEL
				SP	POORLY GRADED SAND POORLY GRADED SAND WITH GRAVEL
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMT. OF FINES)		SM	SILTY SAND SILTY SAND WITH GRAVEL
				SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	SILT, SILT WITH SAND, SANDY SILT GRAVELLY SILT, GRAVELLY SILT WITH SAND
				CL	LEAN CLAY WITH SAND, SANDY LEAN CLAY GRAVELLY LEAN CLAY WITH SAND
				OL	ORGANIC CLAY, SANDY ORGANIC CLAY ORGANIC SILT, SANDY ORGANIC SILT WITH GRAVEL
	SILT AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	ELASTIC SILT WITH SAND, SANDY ELASTIC SILT GRAVELLY ELASTIC SILT WITH SAND
				CH	FAT CLAY WITH SAND, SANDY FAT CLAY GRAVELLY FAT CLAY WITH SAND
				OH	ORGANIC CLAY WITH SAND, SANDY ORGANIC CLAY, ORGANIC SILT, SANDY ORGANIC SILT
	HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



STANDARD PENETRATION RESISTANCE (ASTM D1586)

The purpose of this test is to determine the relative consistency of the soils in a boring, or from boring over the site. This method consists of making a hole in the ground and driving a 2-inch O.D. split spoon sampler into the soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven 18 inches and the number of blows recorded for each 6 inches of penetration. Values of standard penetration (N) are determined in blows per foot, summarizing the flows required for the last two 6-inche increments of penetration.

Example : 2-6-8; N = 14

THIN-WALLED SAMPLER (ASTM D1587)

The purpose of the thin-walled sampler is to recover a relatively undisturbed soil sample for laboratory tests. The sampler is a thin-walled seamless tube with a 3-inch outside diameter, which is hydraulically pressed into the ground, at a constant rate. The ends are then sealed to prevent soil moisture loss, and the tube is returned to the laboratory for tests.

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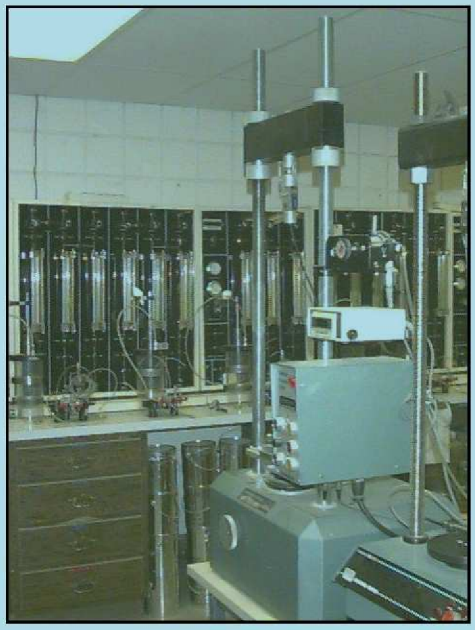
UNCONFINED COMPRESSION OR TRIAXIAL TESTS (ASTM D 2166)



The unconfined compression test and the triaxial tests are performed to determine the shearing strength of the soil, to use in establishing its safe bearing capacity. In order to perform the unconfined compression test, it is necessary that the soil exhibit sufficient cohesion to stand in an unsupported cylinder. These tests are normally performed on samples which are 6.0 inches in height and 2.85 inches in diameter. In the triaxial test, various lateral stresses can be applied to more closely simulate the actual field conditions. There are several different types of triaxial tests. These are, however, normally performed on constant strain apparatus with a deformation rate of 0.05 inches per minute.

CONSOLIDATION TEST (ASTM D 2435)

The purpose of this test is to determine the compressibility of the soil. This test is performed on a sample of soil which is 2.5 inches in diameter and 1.0 inch in height, and has been trimmed from relatively "undisturbed" samples. The test is performed with a lever system or an air activated piston for applying load. The loads are applied in increments and allowed to remain on the sample for a period of 24 hours. The consolidation of the sample under each individual load is measured and a curve of void ratio vs. Pressure is obtained. From the information obtained in this manner and the column loads of the structure, it is possible to calculate the settlement of each individual building column. This information, together with the shearing strength of the soil, is used to determine the safe bearing capacity for a particular structure.

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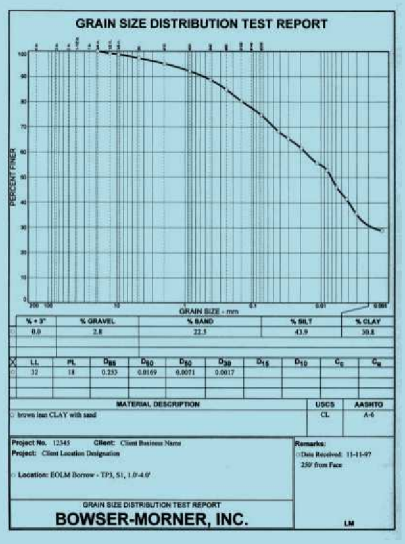
REVISED TO ASTM D4318

ATTERBERG LIMITS (ASTM D423 AND D424)

These tests determine the liquid and plastic limits of soils having a predominant percentage of fine particle (silt and clay) sizes. The liquid limit of a soil is the moisture content expressed as a percent at which the soil changes from a liquid to a plastic state, and the plastic limit is the moisture content at which the soil changes from a plastic to a semi-solid state. Their difference is defined as the plasticity index (P.I. = L.L. - P.L.), which is the change in moisture content required to change the soil from a "semi-solid" to a liquid. These tests furnish information about the soil properties which is important in determining their relative swelling potential and their classifications.

MECHANICAL ANALYSIS (ASTM D422)

This test determines the percent of each particle size of a soil. A sieve analysis is conducted on particle sizes greater than a No. 200 sieve (0.074 mm), and a hydrometer test on particles smaller than the No.200 sieve. The gradation curve is drawn through the points of cumulative percent of particle size, and plotted on semi-logarithmic paper for the combined sieve and hydrometer analysis. This test, together with the Atterberg Limits tests, is used to classify a soil.


GRAIN SIZE DISTRIBUTION TEST REPORT

PERCENT FINER

GRAIN SIZE - mm

% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.8	22.3	43.9	30.8

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
32	18	0.353	0.0169	0.0071	0.0017				

MATERIAL DESCRIPTION	USCS	AASHTO
brown lean CLAY with sand	CL	A-6

Project No. 12345 Client: Client Business Name
Project: Client Location Designation
Location: EOLM Borrow - TP3, S1, 1.0-4.0'

Remarks:
Date Received: 11-11-97
250' from Face

GRAIN SIZE DISTRIBUTION TEST REPORT
BOWSER-MORNER, INC.
LM

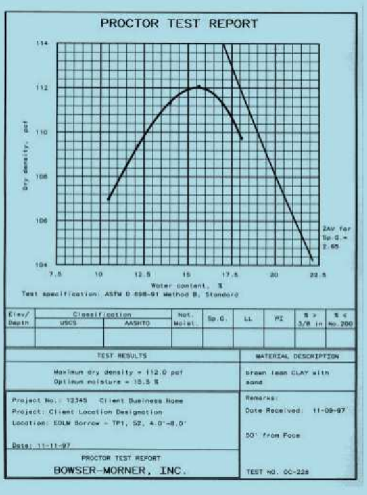
BOWSER MORNER

NATURAL MOISTURE CONTENT (ASTM D2216)

The purpose of this test is to indicate the range of moisture contents present in the soil. A wet sample is weighed, placed in the constant temperature oven at 105° for 24 hours, and re-weighed. The moisture content is the change in weight divided by the dry weight.

PROCTOR TESTS

The purpose of these tests is to determine the maximum density and optimum moisture content of a soil. The Modified Proctor test is performed in accordance with ASTM D1557. The test is performed by dropping a 10-pound hammer 25 times from an 18-inch height on each of 5 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 56,250 foot pounds per cubic foot. The moisture content is then raised, and this procedure is repeated. A moisture density curve is then plotted, with the density on the ordinate axis and the moisture on the abscissa axis. The moisture content at which the maximum density requirement can be achieved with a minimum compactive effort is designated as the optimum moisture content (O.M.C.). The Standard Proctor test is performed in accordance with ASTM D698. This test is similar to the Modified Proctor test and is performed by dropping a 5.5 pound hammer 25 times from a height of 12 inches on 3 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 12,375 foot pounds per cubic foot. This test gives proportionately lower results than the Modified Proctor test.


PROCTOR TEST REPORT

Dry density, pcf

Water content, %

ZAV for Sp.G. = 2.65

Test specification: ASTM D 698-91 Method B, Standard

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in	% < No. 200

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 112.0 pcf Optimum moisture = 13.5 %	brown lean CLAY with sand
Project No.: 12345 Client: Business Name Project: Client Location Designation Location: EOLM Borrow - TP1, S2, 4.0'-8.0' Date: 11-11-97	Remarks: Date Received: 11-08-97 50' from Pole
PROCTOR TEST REPORT BOWSER-MORNER, INC.	TEST NO. 00-228

BOWSER MORNER

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-1

Latitude	: 40.16484	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.21019	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 944.2(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 20 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0 – 2.0	SS-1	SPT	16		Medium stiff, dark brown, sandy lean CLAY (some silt) - moist	5 5 5	◆10		
3.0					(Becomes light brown at 3.0')				
4.0 – 5.0	SS-2	SPT	16			3 3 4	◆7		
6.0 – 7.0	SS-3	SPT	18		Loose brown SAND with gravel (some cobbles) - moist	2 3 4	◆7		
8.0					(Water encountered at 8.0')			▽	
9.0 – 10.0	SS-4	SPT	14			5 4 4	◆8		
11.0 – 13.0								▼	
14.0 – 15.0	SS-5	SPT	16			3 4 5	◆9		
16.0 – 18.0									
19.0	SS-6	SPT	15			6 6 4	◆10		
					B-1 Terminated at 20 Ft				

Water

▽ Initial Depth

▼ Completion Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

Bowser-Morner
4518 Taylorsville Rd, Dayton, OH 45424
Phone: (937) 236-8805

Boring No.: B-2

Latitude	: 40.16482	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20981	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 945.8(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	13		Stiff, dark brown, sandy lean CLAY (some silt) - moist	5 5 8	13		
2.0									
3.0					(Some gravel, trace buried brick, trace gray. Becomes brown at 3.0')				
4.0	SS-2	SPT	14			3 3 4	7		
5.0					(Medium stiff at 3.5')				
6.0									
7.0	SS-3	SPT	18		(Hard at 6.0')	17 23 25	48		
8.0					(Trace water encountered. Becomes gray at 8.0')			▽	
9.0	SS-4	SPT	18			15 20 21	41	▼	
10.0									
11.0									
12.0									
13.0					Medium dense, gray silty SAND with gravel - wet				
14.0	SS-5	SPT	18			9 11 15	26		
					B-2 Terminated at 15 Ft				

Water
- ▽ Initial Depth
- ▼ Completion Depth

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

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Phone: (937) 236-8805

Boring No.: B-3

Latitude	: 40.16437	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.21005	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 946(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	14		Very stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 5 13	18		
2.0									
3.0									
4.0	SS-2	SPT	18		(Stiff at 3.5')	6 5 8	13		
5.0									
6.0									
7.0	SS-3	SPT	18		(Very stiff at 6.0')	8 11 15	26		
8.0					(Becomes gray at 8.0')				
9.0	SS-4	SPT	15			15 14 12	26		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	18			8 12 18	30		
					B-3 Terminated at 15 Ft				

Water

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-4

Latitude	: 40.16385	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.21039	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 947.1(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
0.0					(FILL) TOPSOIL (10")				
1.0	SS-1	SPT	14		(FILL) Medium stiff, light-to-dark brown, sandy lean CLAY (some silt, some broken wood, some gravel, trace cobbles) - moist	4 3 6	◆ 9	▽	
3.0									
4.0	SS-2	SPT	13			3 5 3	◆ 8		
5.0									
6.0	SS-3	SPT	13		(FILL) Soft, dark gray-to-black, sandy lean CLAY (some silt, some gravel) - wet	6 2 3	◆ 5		
8.0					(ORIGINAL) Medium stiff, gray, sandy lean CLAY (some silt, some gravel, trace cobbles) - wet				
9.0	SS-4	SPT	14			3 3 3	◆ 6		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	15		(Very stiff at 13.5')	12 13 12	◆ 25		
					B-4 Terminated at 15 Ft				

Water
▽ Initial Depth

Weathering
XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering
XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency
VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture
D : Dry
M : Moist
W : Wet

Density
VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength
VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results
U50 : Undisturbed 50mm diam tube.
D : Disturbed sample.
SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
S : Vane shear value kPa.
DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-5

Latitude	: 40.16382	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.21000	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 948.4(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (9.5")				
1.0	SS-1	SPT	14		Medium stiff, brown and gray, sandy lean CLAY (some silt, trace gravel) - moist	5 3 4	7		
2.0									
3.0									
4.0	SS-2	SPT	13		(Stiff at 3.5')	4 5 6	11		
5.0									
6.0	SS-3	SPT	13		(Medium stiff at 6.0')	3 3 3	6		
7.0									
8.0	SS-4	SPT	4		(Soft at 8.5')	2 2 3	5		
9.0									
10.0									
11.0									
12.0									
13.0	SS-5	SPT	18		Very dense gray SAND with gravel (some cobbles) - wet	24 29 35	50+		
14.0					B-5 Terminated at 15 Ft				

Water

Weathering

XW	:	Extremely weathered
DW	:	Distinctly weathered
HW	:	Highly weathered
MW	:	Moderately weathered
SW	:	Slightly weathered
FR	:	Fresh

Altering

XA	:	Extremely alterated
DA	:	Distinctly alterated
HA	:	Highly alterated
MA	:	Moderately alterated
SA	:	Slightly alterated

Consistency

VS	:	Very soft
S	:	Soft
F	:	Firm
St	:	Stiff
VSt	:	Very stiff
H	:	Hard
FR	:	Friable

Moisture

D	:	Dry
M	:	Moist
W	:	Wet

Density

VL	:	Very loose
L	:	Loose
MD	:	Medium dense
D	:	Dense
VD	:	Very dense

Rock Strength

VLS	:	Very low
LS	:	Low
MS	:	Medium
HS	:	High
VH	:	Very high
XH	:	Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-6

Latitude	: 40.16317	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20877	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 950.1(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	15		Stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	3 3 10	13		
3.0					Medium dense brown SAND (some silt, trace clay) - moist.				
4.0	SS-2	SPT	18			6 5 6	11		
6.0	SS-3	SPT	18			12 9 15	24		
8.0					(Becomes gray and wet at 8.0')			▽	
9.0	SS-4	SPT	18		(Dense at 8.5')	15 16 19	35		
14.0	SS-5	SPT	18			18 22 26	48		
					B-6 Terminated at 15 Ft				

Water
▽ Initial Depth

Weathering
XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering
XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency
VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture
D : Dry
M : Moist
W : Wet

Density
VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength
VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results
U50 : Undisturbed 50mm diam tube.
D : Disturbed sample.
SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
S : Vane shear value kPa.
DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-7

Latitude	: 40.16295	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20789	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 953.2(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/16/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (10.5")				
1.0	SS-1	SPT	17		Medium stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 4 6	◆ 10		
2.0									
3.0									
4.0	SS-2	SPT	18			5 4 6	◆ 10		
5.0									
6.0					Loose brown SAND (some silt) - moist.				
7.0	SS-3	SPT	14			9 4 2	◆ 6		
8.0									
9.0	SS-4	SPT	14		(Medium dense at 8.5')	5 6 7	◆ 13	▽	
10.0									
11.0									
12.0									
13.0					(Trace clay. Becomes gray at 13.0')			▽	
14.0	SS-5	SPT	18		(Dense at 13.5')	7 13 18	◆ 31		
					B-7 Terminated at 15 Ft				

Water

▽ Initial Depth

▽ Completion Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-8

Latitude	: 40.16291	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20713	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 954.5(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	18		Very stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 16 14	30		
2.0									
3.0									
4.0	SS-2	SPT	15			16 15 15	30		
5.0									
6.0									
7.0	SS-3	SPT	18			10 13 10	23		
8.0					(Becomes gray at 8.0')				
9.0	SS-4	SPT	18		(Stiff at 8.5')	5 7 8	15		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	18		(Very stiff at 13.5')	13 13 13	26		
					B-8 Terminated at 15 Ft				

Water

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-9

Latitude	: 40.16308	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20642	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 955(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	15		Medium stiff, brown, sandy lean CLAY (some silt, some gravel, trace cobbles) - moist	5 5 4	9		
2.0									
3.0									
4.0	SS-2	SPT	18		(Stiff at 3.5')	3 5 7	12		
5.0									
6.0									
7.0	SS-3	SPT	10		(Very stiff at 6.0')	9 8 10	18		
8.0					(Becomes gray at 8.0')				
9.0	SS-4	SPT	18			5 7 9	16		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	18		(Stiff at 13.5')	5 7 8	15		
					B-9 Terminated at 15 Ft				

Water

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-10

Latitude	: 40.16252	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20818	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 951.1(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	16		Soft, brown lean CLAY with sand (some silt) - moist	2 2 3	5		
3.0	SS-2	SPT	14		Medium dense, brown fine SAND - moist	7 6 5	11		
6.0	SS-3	SPT	18			6 5 7	12		
8.0	SS-4	SPT	18		(Water encountered at 8.0')	7 8 12	20	▽	
13.0	SS-5	SPT	18		Dense, brown silty SAND - wet	14 15 16	31		
					B-10 Terminated at 15 Ft				

Water
▽ Initial Depth

Weathering
XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering
XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency
VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture
D : Dry
M : Moist
W : Wet

Density
VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength
VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results
U50 : Undisturbed 50mm diam tube.
D : Disturbed sample.
SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
S : Vane shear value kPa.
DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-11

Latitude	: 40.16247	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20773	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 952.6(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	17		Stiff, brown, sandy lean CLAY (some silt, some gravel, trace gravel) - moist	2 4 7	11		
3.0									
4.0	SS-2	SPT	18		(Very stiff at 3.5')	8 8 9	17		
6.0	SS-3	SPT	18			7 10 9	19		
8.0					(Becomes gray at 8.0')				
9.0	SS-4	SPT	18		(Stiff at 8.5')	7 6 8	14	▼	
11.0									
13.0					(Water encountered at 13.0')			▽	
14.0	SS-5	SPT	18		(Very stiff at 13.5')	9 8 10	18		
					B-11 Terminated at 15 Ft				

Water
- ▽ Initial Depth
- ▼ Completion Depth

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Phone: (937) 236-8805

Boring No.: B-12

Latitude	: 40.16246	Drill Supplier	:	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20736	Driller Company	:	Client	: RDA Group Architects		
Elevation	: 954.2(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10.5')				
1.0	SS-1	SPT	13		Medium stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	3 4 6	10		
2.0									
3.0									
4.0	SS-2	SPT	15		(Very stiff at 3.5')	11 10 12	22		
5.0									
6.0	SS-3	SPT	18		(Stiff at 6.0')	7 6 8	14		
7.0									
8.0					(Water encountered at 8.0')			▽	
9.0	SS-4	SPT	18		Medium dense, brown silty SAND with gravel (trace clay) - wet	7 9 10	19	▼	
10.0									
11.0									
12.0									
13.0					Medium stiff, gray, sandy lean CLAY (some silt, some gravel) - moist	6 8 16	24		
14.0	SS-5	SPT	18						
					B-12 Terminated at 15 Ft				

Water
- ▽ Initial Depth
- ▼ Completion Depth

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

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Boring No.: B-13

Latitude	: 40.16207	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20823	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 950.3(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	14		Medium stiff, dark brown, sandy lean CLAY (some silt) - moist	2 3 3	6		
3.0					(Becomes light brown at 3.0')				
4.0	SS-2	SPT	14			3 3 3	6		
6.0					Loose, brown silty SAND - wet.			▽	
7.0	SS-3	SPT	18			4 3 4	7		
9.0	SS-4	SPT	18		(Medium dense at 8.5')	7 9 11	20		
13.0					Very stiff, gray, sandy lean CLAY (some silt, some gravel) - moist				
14.0	SS-5	SPT	18			7 8 11	19		
					B-13 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-14

Latitude	: 40.16206	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20777	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 951.4(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	15		Medium stiff, brown, sandy lean CLAY (some silt, some gravel, trace cobbles) - moist	3 3 4	7		
2.0									
3.0									
4.0	SS-2	SPT	18			3 3 4	7		
5.0									
6.0									
7.0	SS-3	SPT	18			3 3 5	8		
8.0					(Becomes gray at 8.0')				
9.0	SS-4	SPT	18		(Stiff at 8.5')	7 7 7	14		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	18		(Very stiff 13.5')	6 8 10	18		
					B-14 Terminated at 15 Ft				

Water

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
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- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-15

Latitude	: 40.16238	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20573	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 958.3(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/19/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
0.0					TOPSOIL (12")				
1.0	SS-1	SPT	18		Medium stiff, dark brown lean CLAY with sand (some silt, trace root hairs, trace gray) - moist	3 3 4	7		
3.0	SS-2	SPT	16			5 5 5	10		
5.0	SS-3	SPT	18		(Becomes light brown and very stiff at 5.5')	8 9 14	23		
8.0	SS-4	SPT	18			6 10 12	22		
10.0								▽	
13.0	SS-5	SPT	18		(Water encountered at 13.0')	10 13 9	22		
15.0					B-15 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-16

Latitude	: 40.16181	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20260	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 971.4(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	13		Medium stiff, dark brown, sandy lean CLAY (some silt, trace root hairs) - moist	3 5 5	10		
2.0									
3.0					(Some gravel, trace cobbles. Becomes light brown at 3.0')				
4.0	SS-2	SPT	13			4 6 4	10		
5.0									
6.0					(Stiff at 6.0')				
7.0	SS-3	SPT	18			6 6 8	14		
8.0									
9.0	SS-4	SPT	18		(Very stiff at 8.5')	5 9 14	23		
10.0								▼	
11.0									
12.0									
13.0								▽	
14.0	SS-5	SPT	18		Very dense, gray silty SAND with gravel - wet	43 32 26	50+		
					B-16 Terminated at 15 Ft				

Water

- ▽ Initial Depth
- ▼ Completion Depth

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-17

Latitude	: 40.16187	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20207	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 972.8(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10.5")				
1.0	SS-1	SPT	17		Medium stiff, dark brown, sandy lean CLAY (some silt) - moist	4 5 5	◆ 10		
2.0									
3.0					(Some gravel, trace gray. Becomes light brown at 3.0')				
4.0	SS-2	SPT	18		(Stiff at 3.5')	7 8 7	◆ 15		
5.0									
6.0	SS-3	SPT	18		(Very stiff at 6.0')	6 9 8	◆ 17		
7.0									
8.0					Medium dense, brown silty SAND with gravel - moist.				
9.0	SS-4	SPT	15			8 12 18	◆ 30		
10.0								▼	
11.0									
12.0									
13.0					(Water encountered at 13.0')			▽	
14.0	SS-5	SPT	15		(Dense at 13.5')	16 14 19	◆ 33		
					B-17 Terminated at 15 Ft				

Water
- ▽ Initial Depth
- ▼ Completion Depth

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

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Boring No.: B-18

Latitude	: 40.16180	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20094	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 973.9(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	18		Medium stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	3 3 5	8		
2.0									
3.0					(Very stiff at 3.5')				
4.0	SS-2	SPT	18			5 7 10	17		
5.0									
6.0	SS-3	SPT	18			7 8 12	20		
7.0									
8.0					Dense brown SAND with gravel - moist.				
9.0	SS-4	SPT	18			17 23 25	48		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	16			20 22 26	48		
					B-18 Terminated at 15 Ft				

Water

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-19

Latitude	: 40.16260	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.20088	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 974.2(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	13		Stiff, brown, sandy lean CLAY (some silt, trace gravel) - moist	3 4 7	11		
2.0									
3.0					(Very stiff at 3.5')				
4.0	SS-2	SPT	18			10 12 17	29		
5.0									
6.0									
7.0	SS-3	SPT	18			8 9 15	24		
8.0									
9.0	SS-4	SPT	16		Medium dense, brown silty SAND with gravel (trace cobbles) - moist.	12 9 11	20		
10.0									
11.0									
12.0									
13.0					(Water encountered at 13.0')			▽	
14.0	SS-5	SPT	14		(Dense at 13.5')	17 19 17	36		
					B-19 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
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Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
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Phone: (937) 236-8805

Boring No.: B-20

Latitude	: 40.16261	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20203	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 972.7(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	18		Medium stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 4 6	10		
2.0									
3.0					(Very stiff at 3.5')				
4.0	SS-2	SPT	18			11 11 13	24		
5.0									
6.0	SS-3	SPT	16			8 8 9	17		
7.0									
8.0					Dense brown SAND with gravel - moist				
9.0	SS-4	SPT	18			15 17 22	39		
10.0									
11.0									
12.0									
13.0					(Water encountered at 13.0')			▽	
14.0	SS-5	SPT	18			18 18 21	39		
					B-20 Terminated at 15 Ft				

Water
▽ Initial Depth

Weathering
XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering
XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
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Consistency
VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture
D : Dry
M : Moist
W : Wet

Density
VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength
VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results
U50 : Undisturbed 50mm diam tube.
D : Disturbed sample.
SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
S : Vane shear value kPa.
DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-21

Latitude	: 40.16279	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20255	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 971.5(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (11.5")				
1.0	SS-1	SPT	15		Stiff, dark brown, sandy lean CLAY (some silt, trace brown) - moist	4 4 8	12		
2.0									
3.0					(Trace limestone floaters encountered. Becomes light brown at 3.0')				
4.0	SS-2	SPT	16		(Very stiff at 3.5')	7 11 16	27		
5.0									
6.0									
7.0	SS-3	SPT	16			12 12 14	26		
8.0									
9.0	SS-4	SPT	15			7 9 11	20		
10.0									
11.0									
12.0									
13.0					Medium dense brown SAND with silt - wet			▽	
14.0	SS-5	SPT	18			7 11 15	26		
					B-21 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-22

Latitude	: 40.16315	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.20302	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 968.4(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	15		Medium stiff, brown, sandy lean CLAY (some silt, trace root hairs, trace gravel) - moist	3 2 4	6		
2.0									
3.0					(Stiff at 3.5')				
4.0	SS-2	SPT	15			5 7 6	13		
5.0									
6.0					Loose, brown, very silty fine SAND - moist				
7.0	SS-3	SPT	17			4 3 4	7		
8.0					(Water encountered at 8.0')			▽	
9.0	SS-4	SPT	14		(Medium dense at 8.5')	5 5 6	11	▼	
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	18		Dense brown SAND with gravel - wet.	17 19 21	40		
					B-22 Terminated at 15 Ft				

Water

- ▽ Initial Depth
- ▼ Completion Depth

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner
4518 Taylorsville Rd, Dayton, OH 45424
Phone: (937) 236-8805

Boring No.: B-23

Latitude	: 40.16320	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20197	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 972.2(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	18		Medium stiff, brown, sandy lean CLAY (some silt, some gravel, trace gray) - moist	3 4 6	10		
2.0									
3.0					(Stiff at 3.5')				
4.0	SS-2	SPT	18			5 5 6	11		
5.0									
6.0	SS-3	SPT	18		Medium dense brown SAND with gravel (some cobbles) - moist.	8 8 9	17		
7.0									
8.0	SS-4	SPT	0			8 15 15	30		
9.0									
10.0									
11.0									
12.0									
13.0	SS-5	SPT	18		Very stiff, gray, sandy lean CLAY (some silt, some gravel) - moist	11 11 17	28		
14.0									
					B-23 Terminated at 15 Ft				

Water

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-24

Latitude	: 40.16309	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.20086	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 973.3(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	14		Stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 4 8	12		
2.0									
3.0					(Medium stiff at 3.5')				
4.0	SS-2	SPT	14			2 3 5	8		
5.0									
6.0	SS-3	SPT	16			4 4 6	10		
7.0									
8.0					Loose, brown silty SAND (trace clay) - moist.				
9.0	SS-4	SPT	14			3 5 5	10		
10.0									
11.0									
12.0									
13.0								▽	
14.0	SS-5	SPT	18		Very stiff, gray, sandy lean CLAY (some silt, some gravel) - moist	15 12 11	23		
					B-24 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-25

Latitude	: 40.16372	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.20079	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 973.3(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	15		Medium stiff, brown, sandy lean CLAY (some silt, trace gravel) - moist	3 3 5	8		
3.0	SS-2	SPT	16		Medium dense brown SAND with gravel (some silt, trace cobbles) - moist.	6 8 9	17		
6.0	SS-3	SPT	15		(Dense at 6.0')	11 17 22	39		
8.0	SS-4	SPT	14		(Medium dense at 8.5')	6 5 9	14		
13.0	SS-5	SPT	18		(Water encountered at 13.0') (Dense at 13.5')	19 18 17	35	▽	
					B-25 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-26

Latitude	: 40.16373	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20193	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 972.9(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
0.0					(FILL) TOPSOIL (10")				
1.0	SS-1	SPT	16		(FILL) Medium stiff, brown, sandy lean CLAY (some silt, some gravel, some asphalt) - moist	4 4 6	◆10		
3.0	SS-2	SPT	18		(ORIGINAL) Stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	8 7 6	◆13		
6.0	SS-3	SPT	18		Medium dense brown SAND (some silt) - moist	4 6 5	◆11		
8.0	SS-4	SPT	18			8 10 13	◆23		
13.0					(Water encountered at 13.0')			▽	
14.0	SS-5	SPT	18			10 12 15	◆27		
					B-26 Terminated at 15 Ft				

Water

▽ Initial Depth

Weathering

XW : Extremely weathered
DW : Distinctly weathered
HW : Highly weathered
MW : Moderately weathered
SW : Slightly weathered
FR : Fresh

Altering

XA : Extremely alterated
DA : Distinctly alterated
HA : Highly alterated
MA : Moderately alterated
SA : Slightly alterated

Consistency

VS : Very soft
S : Soft
F : Firm
St : Stiff
VSt : Very stiff
H : Hard
FR : Friable

Moisture

D : Dry
M : Moist
W : Wet

Density

VL : Very loose
L : Loose
MD : Medium dense
D : Dense
VD : Very dense

Rock Strength

VLS : Very low
LS : Low
MS : Medium
HS : High
VH : Very high
XH : Extremely high

Tests&Results

U50 : Undisturbed 50mm diam tube.

D : Disturbed sample.

SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.

PP : Hand penetrometer estimate of unconfined compressive strength, kPa.

S : Vane shear value kPa.

DCP : Dynamic Cone Penetrometer test.

Bowser-Morner
4518 Taylorsville Rd, Dayton, OH 45424
Phone: (937) 236-8805

Boring No.: B-27

Latitude	: 40.16390	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20278	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 966.9(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/21/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	18		Stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	4 6 6	12		
3.0	SS-2	SPT	18		Medium dense brown SAND (some silt, trace clay) - moist.	8 9 10	19		
6.0	SS-3	SPT	18			8 9 10	19		
8.0					(Water encountered at 8.0')			▽	
9.0	SS-4	SPT	18			8 11 13	24	▼	
14.0	SS-5	SPT	18		(Dense at 13.5')	11 23 25	48		
					B-27 Terminated at 15 Ft				

Water
- ▽ Initial Depth
- ▼ Completion Depth

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-28

Latitude	: 40.16419	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20076	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 972(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90100)	WATER	REMARKS
					TOPSOIL (12")				
1.0	SS-1	SPT	15		Medium stiff, dark brown, sandy lean CLAY (some silt) - moist	3 3 5	8		
2.0									
3.0					(Some cobbles encountered. Becomes light brown at 3.0')				
4.0	SS-2	SPT	16		(Soft at 3.5')	2 1 3	4		
5.0									
6.0					(Becomes gray at 5.5')				
7.0	SS-3	SPT	18		(Very stiff at 6.0')	8 9 7	16		
8.0									
9.0	SS-4	SPT	18			8 12 11	23		
10.0									
11.0									
12.0									
13.0									
14.0	SS-5	SPT	0		(Hard at 13.5')	15 18 19	37		
					B-28 Terminated at 15 Ft				

Water

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner

4518 Taylorsville Rd, Dayton, OH 45424

Phone: (937) 236-8805

Boring No.: B-29

Latitude	: 40.16463	Drill Supplier	: Central Star Drilling	Job Number	: 20006428
Longitude	: -84.20104	Driller Company	: Central Star Drilling	Client	: RDA Group Architects
Elevation	: 972.8(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA

Sheet : 1 OF 1

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (10")				
1.0	SS-1	SPT	15		Medium stiff, brown, sandy lean CLAY (some silt, some gravel) - moist	3 3 7	10		
3.0									
4.0	SS-2	SPT	18		(Soft at 3.5')	3 2 3	5		
6.0	SS-3	SPT	18		(Very stiff at 6.0')	8 12 14	26		
8.0	SS-4	SPT	18		(Trace limestone floaters encountered. Becomes gray at 8.0') (Hard at 8.5')	11 16 15	31		
10.0									
12.0									
14.0	SS-5	SPT	18		(Very stiff at 13.5')	8 11 16	27		
					B-29 Terminated at 15 Ft				

Water

Weathering

- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering

- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency

- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

Moisture

- D : Dry
- M : Moist
- W : Wet

Density

- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength

- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results

- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

Bowser-Morner
4518 Taylorsville Rd, Dayton, OH 45424
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Boring No.: B-30

Latitude	: 40.16464	Drill Supplier	: Central Star Drilling	Job Number	: 20006428	Sheet	: 1 OF 1
Longitude	: -84.20029	Driller Company	: Central Star Drilling	Client	: RDA Group Architects		
Elevation	: 975.3(ft)	Logged By	: DO	Project	: Soil Study for Proposed Development Site, Indian Trail, Piqua, Ohio		
Total Depth	: 15 Ft	Date	: 01/20/2026	Location	: 1 Indian Trail Suite 12A, Piqua, OH 45356, USA		

DEPTH (ft. BGL)	SAMPLE NO.	TEST TYPE	RECOVERY (in.)	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. ◆ (0 10 20 30 40 50 60 70 80 90 100)	WATER	REMARKS
					TOPSOIL (11")				
1.0	SS-1	SPT	15		Soft, brown, sandy lean CLAY (some silt, some gravel) - moist	2 2 3	5		
3.0	SS-2	SPT	15		(Very stiff at 3.5')	8 12 15	27		
6.0	SS-3	SPT	18		Medium dense brown SAND (some silt, trace clay) - moist.	8 13 11	24		
8.0	SS-4	SPT	18		(Becomes gray at 8.0') (Dense at 8.5')	14 14 18	32		
13.0	SS-5	SPT	18		Very stiff, gray, sandy lean CLAY (some silt, some gravel, trace cobbles) - moist	10 11 15	26		
					B-30 Terminated at 15 Ft				

Water

Weathering
- XW : Extremely weathered
- DW : Distinctly weathered
- HW : Highly weathered
- MW : Moderately weathered
- SW : Slightly weathered
- FR : Fresh

Altering
- XA : Extremely alterated
- DA : Distinctly alterated
- HA : Highly alterated
- MA : Moderately alterated
- SA : Slightly alterated

Consistency
- VS : Very soft
- S : Soft
- F : Firm
- St : Stiff
- VSt : Very stiff
- H : Hard
- FR : Friable

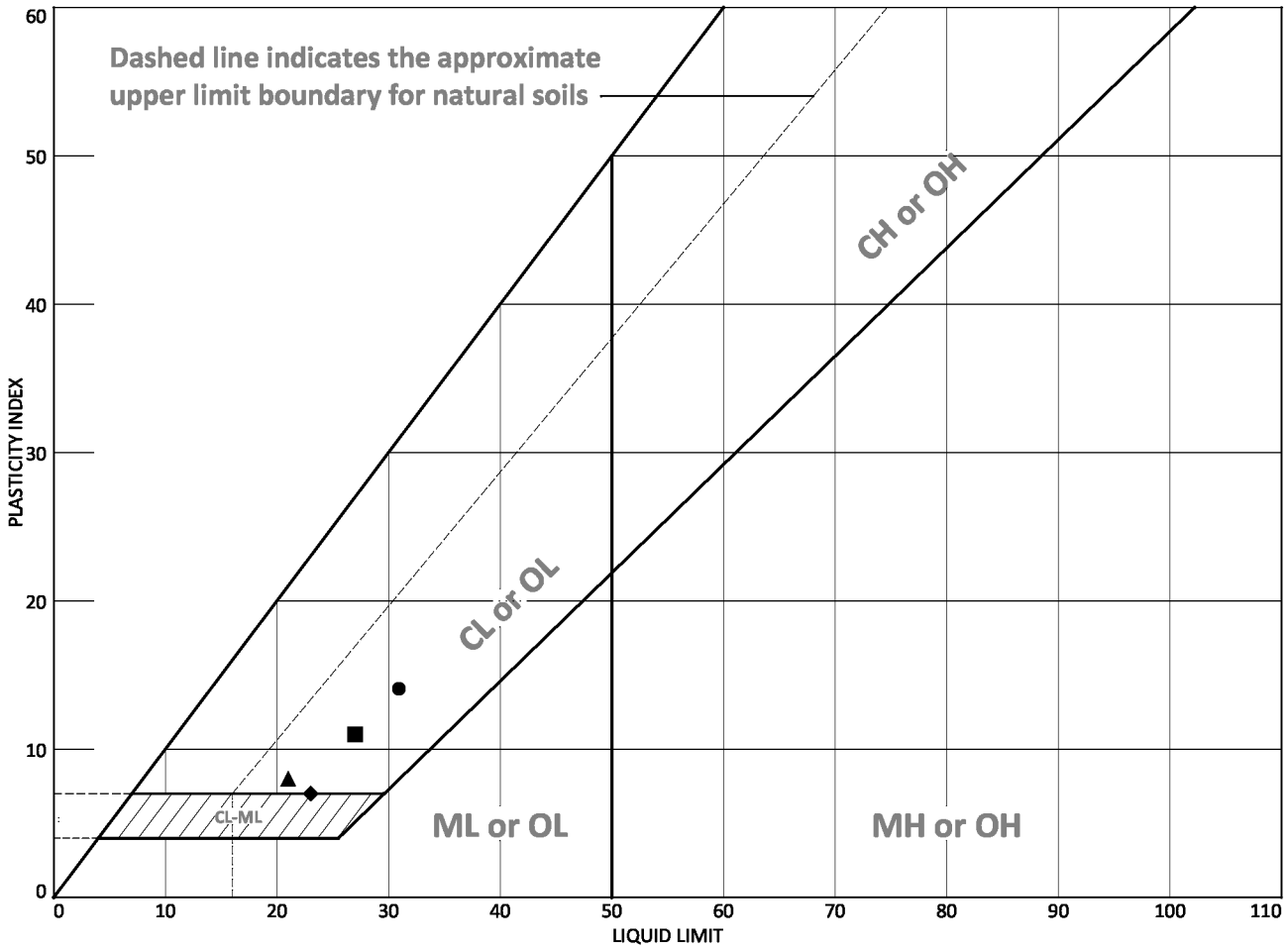
Moisture
- D : Dry
- M : Moist
- W : Wet

Density
- VL : Very loose
- L : Loose
- MD : Medium dense
- D : Dense
- VD : Very dense

Rock Strength
- VLS : Very low
- LS : Low
- MS : Medium
- HS : High
- VH : Very high
- XH : Extremely high

Tests&Results
- U50 : Undisturbed 50mm diam tube.
- D : Disturbed sample.
- SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm.
- PP : Hand penetrometer estimate of unconfined compressive strength, kPa.
- S : Vane shear value kPa.
- DCP : Dynamic Cone Penetrometer test.

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	B-1, SS-2	31	17	14			
■	B-14, SS-2	27	16	11			
▲	B-16, SS-3	21	13	8			
◆	B-28, SS-2	23	16	7			

Project No. 20006428 **Client:** RDA Group

Project: Proposed Development Site

●**Location:** B-1 **Depth:** 3.5'-5.0' **Sample Number:** SS-2

■**Location:** B-14 **Depth:** 3.5'-5.0' **Sample Number:** SS-2

▲**Location:** B-16 **Depth:** 6.0'-7.5' **Sample Number:** SS-3

◆**Location:** B-28 **Depth:** 3.5'-5.0' **Sample Number:** SS-2

BOWSER-MORNER, INC.

Dayton, Ohio

Remarks:

●As Received Moisture Content: 19.8%

■As Received Moisture Content: 16.1%

▲As Received Moisture Content: 12.4%

◆As Received Moisture Content: 25.7%

Tested By: CC **Checked By:** BLC

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: RDA Group Architects
Project: Proposed Development Site

Work Order No.: 20006428
Date: 03/03/26

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-1	SS 1	1.0 - 2.5	0.3 - 0.8	21.1
	SS 2	3.5 - 5.0	1.1 - 1.5	19.8
	SS 3	6.0 - 7.5	1.8 - 2.3	13.3
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
	SS 6	18.5 - 20.0	5.6 - 6.1	Not Tested
B-2	SS 1	1.0 - 2.5	0.3 - 0.8	18.7
	SS 2	3.5 - 5.0	1.1 - 1.5	15.8
	SS 3	6.0 - 7.5	1.8 - 2.3	8.3
	SS 4	8.5 - 10.0	2.6 - 3.0	8.6
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-3	SS 1	1.0 - 2.5	0.3 - 0.8	7.5
	SS 2	3.5 - 5.0	1.1 - 1.5	16.5
	SS 3	6.0 - 7.5	1.8 - 2.3	Not Tested
	SS 4	8.5 - 10.0	2.6 - 3.0	8.9
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-4	SS 1	1.0 - 2.5	0.3 - 0.8	13.8
	SS 2	3.5 - 5.0	1.1 - 1.5	Not Tested
	SS 3	6.0 - 7.5	1.8 - 2.3	26.8
	SS 4	8.5 - 10.0	2.6 - 3.0	24.6
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-5	SS 1	1.0 - 2.5	0.3 - 0.8	11.9
	SS 2	3.5 - 5.0	1.1 - 1.5	25.7
	SS 3	6.0 - 7.5	1.8 - 2.3	19.4
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-6	SS 1	1.0 - 2.5	0.3 - 0.8	13.7
	SS 2	3.5 - 5.0	1.1 - 1.5	15.2
	SS 3	6.0 - 7.5	1.8 - 2.3	15.8
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-7	SS 1	1.0 - 2.5	0.3 - 0.8	24.4
	SS 2	3.5 - 5.0	1.1 - 1.5	15.9
	SS 3	6.0 - 7.5	1.8 - 2.3	18.1
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: RDA Group Architects
Project: Proposed Development Site

Work Order No.: 20006428
Date: 03/03/26

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-8	SS 1	1.0 - 2.5	0.3 - 0.8	17.1
	SS 2	3.5 - 5.0	1.1 - 1.5	11.1
	SS 3	6.0 - 7.5	1.8 - 2.3	8.9
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-9	SS 1	1.0 - 2.5	0.3 - 0.8	27.9
	SS 2	3.5 - 5.0	1.1 - 1.5	13.4
	SS 3	6.0 - 7.5	1.8 - 2.3	12.9
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-10	SS 1	1.0 - 2.5	0.3 - 0.8	29.7
	SS 2	3.5 - 5.0	1.1 - 1.5	6.6
	SS 3	6.0 - 7.5	1.8 - 2.3	4.8
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-11	SS 1	1.0 - 2.5	0.3 - 0.8	13.0
	SS 2	3.5 - 5.0	1.1 - 1.5	11.2
	SS 3	6.0 - 7.5	1.8 - 2.3	11.5
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-12	SS 1	1.0 - 2.5	0.3 - 0.8	12.5
	SS 2	3.5 - 5.0	1.1 - 1.5	11.3
	SS 3	6.0 - 7.5	1.8 - 2.3	11.9
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-13	SS 1	1.0 - 2.5	0.3 - 0.8	23.3
	SS 2	3.5 - 5.0	1.1 - 1.5	20.6
	SS 3	6.0 - 7.5	1.8 - 2.3	17.4
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-14	SS 1	1.0 - 2.5	0.3 - 0.8	23.4
	SS 2	3.5 - 5.0	1.1 - 1.5	16.1
	SS 3	6.0 - 7.5	1.8 - 2.3	12.7
	SS 4	8.5 - 10.0	2.6 - 3.0	11.6
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: RDA Group Architects
Project: Proposed Development Site

Work Order No.: 20006428
Date: 03/03/26

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-15	SS 1	1.0 - 2.5	0.3 - 0.8	22.5
	SS 2	3.5 - 5.0	1.1 - 1.5	26.2
	SS 3	6.0 - 7.5	1.8 - 2.3	13.6
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-16	SS 1	1.0 - 2.5	0.3 - 0.8	21.7
	SS 2	3.5 - 5.0	1.1 - 1.5	17.5
	SS 3	6.0 - 7.5	1.8 - 2.3	12.4
	SS 4	8.5 - 10.0	2.6 - 3.0	9.3
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-17	SS 1	1.0 - 2.5	0.3 - 0.8	20.6
	SS 2	3.5 - 5.0	1.1 - 1.5	14.0
	SS 3	6.0 - 7.5	1.8 - 2.3	10.7
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-18	SS 1	1.0 - 2.5	0.3 - 0.8	20.1
	SS 2	3.5 - 5.0	1.1 - 1.5	17.6
	SS 3	6.0 - 7.5	1.8 - 2.3	17.8
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-19	SS 1	1.0 - 2.5	0.3 - 0.8	13.0
	SS 2	3.5 - 5.0	1.1 - 1.5	12.6
	SS 3	6.0 - 7.5	1.8 - 2.3	8.9
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-20	SS 1	1.0 - 2.5	0.3 - 0.8	24.2
	SS 2	3.5 - 5.0	1.1 - 1.5	9.7
	SS 3	6.0 - 7.5	1.8 - 2.3	10.9
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-21	SS 1	1.0 - 2.5	0.3 - 0.8	21.8
	SS 2	3.5 - 5.0	1.1 - 1.5	11.3
	SS 3	6.0 - 7.5	1.8 - 2.3	10.7
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: RDA Group Architects
Project: Proposed Development Site

Work Order No.: 20006428
Date: 03/03/26

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-22	SS 1	1.0 - 2.5	0.3 - 0.8	15.6
	SS 2	3.5 - 5.0	1.1 - 1.5	19.1
	SS 3	6.0 - 7.5	1.8 - 2.3	6.2
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-23	SS 1	1.0 - 2.5	0.3 - 0.8	21.7
	SS 2	3.5 - 5.0	1.1 - 1.5	19.1
	SS 3	6.0 - 7.5	1.8 - 2.3	6.6
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-24	SS 1	1.0 - 2.5	0.3 - 0.8	22.9
	SS 2	3.5 - 5.0	1.1 - 1.5	16.6
	SS 3	6.0 - 7.5	1.8 - 2.3	15.1
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-25	SS 1	1.0 - 2.5	0.3 - 0.8	23.0
	SS 2	3.5 - 5.0	1.1 - 1.5	15.4
	SS 3	6.0 - 7.5	1.8 - 2.3	7.4
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-26	SS 1	1.0 - 2.5	0.3 - 0.8	12.6
	SS 2	3.5 - 5.0	1.1 - 1.5	19.7
	SS 3	6.0 - 7.5	1.8 - 2.3	7.6
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-27	SS 1	1.0 - 2.5	0.3 - 0.8	19.4
	SS 2	3.5 - 5.0	1.1 - 1.5	17.2
	SS 3	6.0 - 7.5	1.8 - 2.3	20.2
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-28	SS 1	1.0 - 2.5	0.3 - 0.8	25.4
	SS 2	3.5 - 5.0	1.1 - 1.5	25.7
	SS 3	6.0 - 7.5	1.8 - 2.3	10.7
	SS 4	8.5 - 10.0	2.6 - 3.0	8.9
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested

Moisture Content of Soil

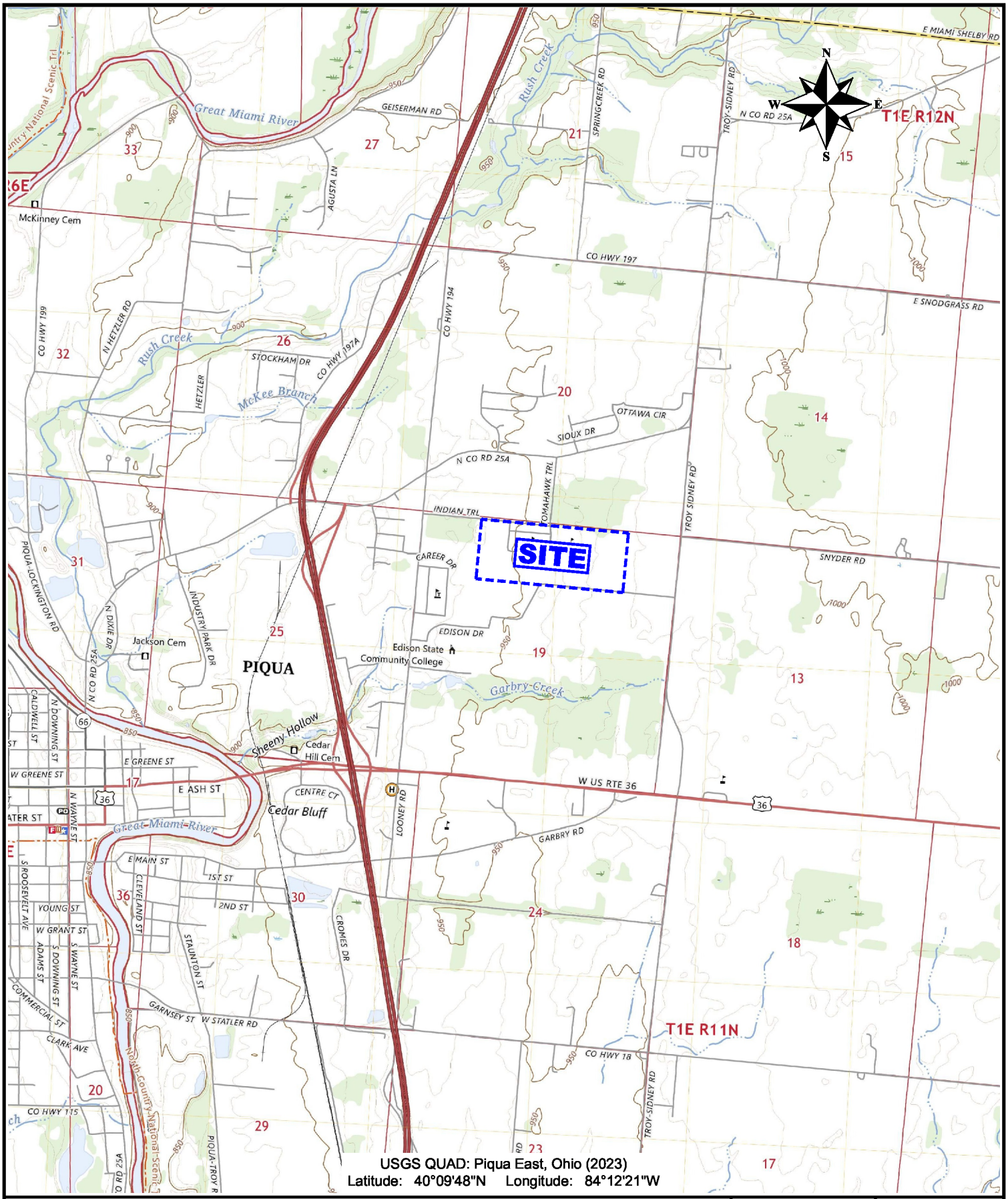
ASTM (D-2216)

BOWSER MORNER

Client: RDA Group Architects
Project: Proposed Development Site

Work Order No.: 20006428
Date: 03/03/26

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-29	SS 1	1.0 - 2.5	0.3 - 0.8	10.9
	SS 2	3.5 - 5.0	1.1 - 1.5	18.9
	SS 4	6.0 - 7.5	1.8 - 2.3	10.6
	SS 5	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 6	13.5 - 15.0	4.1 - 4.6	Not Tested
B-30	SS 1	1.0 - 2.5	0.3 - 0.8	26.1
	SS 2	3.5 - 5.0	1.1 - 1.5	14.9
	SS 3	6.0 - 7.5	1.8 - 2.3	19.3
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested



USGS QUAD: Piqua East, Ohio (2023)
Latitude: 40°09'48"N Longitude: 84°12'21"W

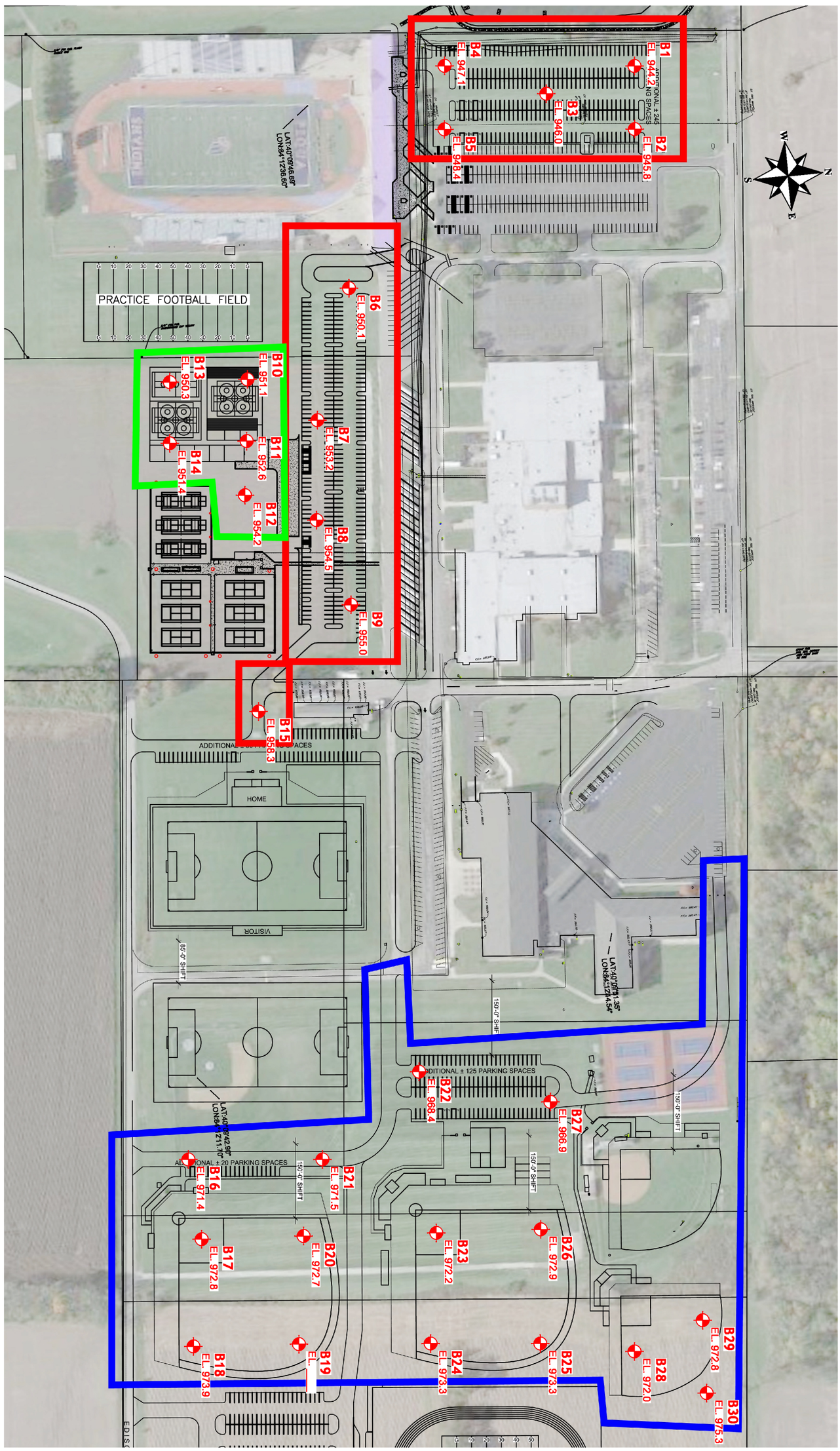
VICINITY MAP

Soil Study for Proposed Development Site
Piqua City Schools
1 Indian Trail
Piqua, Miami County, Ohio
For: RDA Group Architects

12-2025 EM

PROJECT NO.	20006428
SCALE	1" = 1/2 Mile
FIGURE NO.	1

BOWSER MORNER



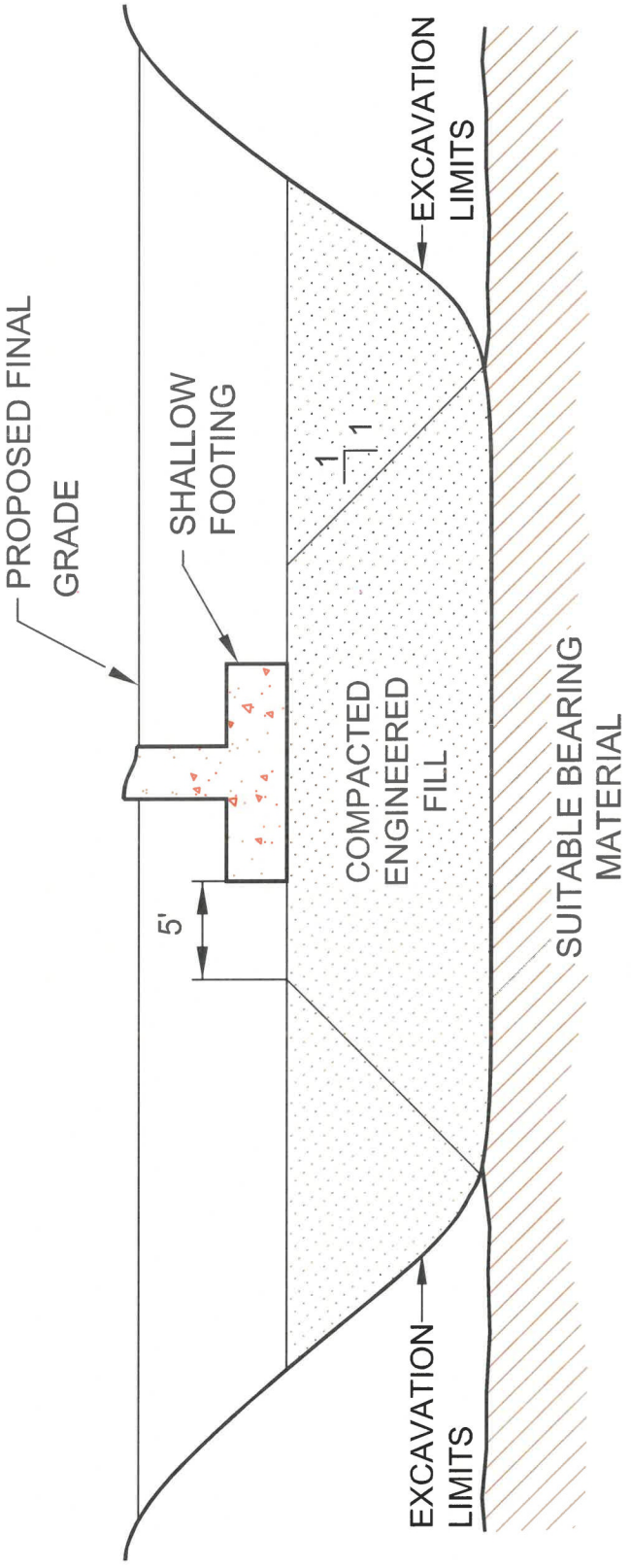
BORING LOCATION PLAN

Soil Study for Proposed Development Site
Piqua City Schools
1 Indian Trail
Piqua, Miami County, Ohio
For: RDA Group Architects

12-2025 EM

PROJECT NO.	20006428
SCALE	1" = 200'
FIGURE	2

BOWSER MORNER



DESIGN ILLUSTRATION SHALLOW FOOTINGS IN AN UNDERCUT AREA

SCALE
NONE

FIGURE NO.
3

BOWSER MORNER

ENGINEERING & ENVIRONMENTAL SERVICES:

- Geotechnical Engineering
- Subsurface Exploration
- Civil Engineering
- Environmental Services
- Due Diligence
- Permitting

LABORATORY SERVICES:

- Geotechnical Laboratories
- Construction Materials Laboratories
- Mineral Aggregates
- Concrete
- Stone & Masonry
- Asphalt
- Analytical Services Laboratories
- Industrial Minerals
- Product Testing
- Mechanical/Metallurgical Testing
- Calibration Services
- Chemistry Laboratory
- Consulting Geology
- Radon Reference Laboratory

CONSTRUCTION SUPPORT SERVICES:

- General Construction
- Construction Quality Assurance
- Building Code Special Inspections
- Transportation Projects:
  - Contractor QA/QC
  - Material Supplier QA/QC
  - Owner Quality Assurance
- Materials Consulting:
  - Construction Engineering

Dayton, OH • Toledo, OH
Springfield, IL
www.bowser-morner.com

DOCUMENT 00 01 10 - TABLE OF CONTENTS

DRAWINGS

END OF DOCUMENT

SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 DEFINITIONS

A. Bidding Documents include the Bidding Requirements and proposed Contract Documents. The Bidding Requirements consist of the Invitation to Bid, Instructions to Bidders, Bid Form, and other Bidding and Contract Forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract [General, Supplementary and other Conditions], Drawings, Specifications, and all Addenda issued prior to the execution of the Contract.

B. Bidding Documents: Contract Documents supplemented with Invitation to Bid, Instructions to Bidders, Bid Form, and Bid Securities, issued addenda, identified.

C. Contract Documents: Defined in AIA Document A104-2017.

D. General Conditions to the Contract for Construction: Defined in AIA Document A201-2017.

E. Bid: Executed Bid Form and required attachments submitted in accordance with these Instructions to Bidders.

F. Bid Price: Monetary sum identified by the Bidder in the Bid Form.

1.2 BID SUBMISSION

A. **Two [2] copies of the Bids, signed and under seal, executed, and dated will be received by Piqua City Schools, Board of Education Office located at 215 Looney Road, Piqua, OH 45356 until 9:00 AM local time on May 14, 2026.**

B. Bids submitted after the above time may be returned to Bidder unopened.

C. Amendments to submitted Bids will be permitted when received in writing prior to bid closing and when endorsed by the same party or parties who signed and sealed the Bid.

D. Bidders may withdraw their Bid by written request at any time before bid closing.

1.3 INTENT

A. The intent of this Bid request is to obtain an offer to perform work to complete the parking lot and related site improvements at the Piqua High School Campus for a Stipulated Sum contract, in accordance with the Contract Documents. **The project is intended to be accomplished over the summer break 2026.**
   1. Refer to Section 01 00 00 coordination / work schedules.

1.4 WORK IDENTIFIED IN CONTRACT DOCUMENTS

A. Work of this proposed Contract comprises of general trades construction – General Construction and all interrelated work as outlined on the project documents.

1.5 CONTRACT DOCUMENTS IDENTIFICATION

A. The Contract Documents are identified as **Parking Lot Improvements 2026, Piqua High School, Piqua City Schools** as prepared by RDA Group Architects, 937.610.3440, 7662 Paragon Road, Dayton, OH 45459

1.6 AVAILABILITY OF DOCUMENTS

A. Bidding Documents may be obtained upon request from Jonathan Schaaf at RDA by emailing **JRS@rda-group.com**.

B. Bidding Documents may be printed at the bidder's expense with no refund. Bidding Documents will be issued in PDF format only.

C. Partial sets of Bidding Documents will not be issued. The Owner and Architect shall not be responsible for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

D. Cost of the Bidding Documents is non-refundable.

E. Bidding Documents are made available only for the purpose of obtaining offers for this Project. Their use does not grant a license for other purposes.

1.7 EXAMINATION OF DOCUMENTS

A. Bidding Documents are not on display at the offices of the Architect nor the Owner but may be on display at other agencies.

B. Upon receipt of Bidding Documents verify documents are complete. Notify Architect if documents are incomplete.

C. Immediately notify Architect upon finding discrepancies or omissions in Bidding Documents.

D. The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and location conditions.

E. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request at least five [5] days prior to the Bid Date

F. Interpretations, corrections and changes to the Bidding Documents will be made by Addendum only.

1.8 DESCRIPTION OF THE BID DOCUMENTS

A. Bid Documents consist of Drawings, Technical Specifications, and General Conditions. All documents are intended to complement the other. It is the Contractor's responsibility to review all documents, coordinate between applicable documents, interpret the work scope required to provide the finished product as outlined. The Contractor shall coordinate all aspects of the project, including delineation between various trades.
   1. Drawings indicate the general configuration and layout of the work and indicate individual scope of work items.
   2. All units and/or dimensions indicated are approximate and are to be field verified by Contractor. It is the contractor's responsibility to field verify the location and dimensions of any work scope item prior to bid.
   3. All work should be referenced with the applicable technical specifications and standards.
   4. Technical Specifications will contain a specification description for each work scope identified on the Drawings and Bid Form.

1.9 INQUIRIES AND ADDENDA

A. Direct questions in writing to Jonathan Schaaf of RDA; email: JRS@rda-group.com.

B. Verbal answers are not binding on any party.

C. Submit questions not less than five [5] days before date set for receipt of Bids. Replies will be made by Addenda.

D. Addenda will be issued no later than two [2] days prior to the Bid Date except for an Addendum which changes the Bid Date.

E. Addenda may be issued during bidding period. Addenda will be sent to all known Bidders and plan rooms where Bid Documents are on file. Addenda becomes part of the Contract Documents. Include resultant costs in the Bid Price. Bidder shall acknowledge receipt of Addenda in the Bid. Failure to acknowledge addenda is cause for rejection of the bid submitted.

1.10 PRODUCT SUBSTITUTIONS

A. Refer to Section 01 25 00 for specific requirements for substitution requests.

B. Approved substitutions will be identified by Addenda.

C. Bidders shall not rely upon approvals made in any other manner.

1.11 SITE EXAMINATION

A. Examine the Project Site before submitting a Bid.

B. Contact Sean Shumaker at 937-423-2238 to arrange date and time to visit Project site.

1.12 PRE-BID CONFERENCE [MANDATORY]

A. **A MANDATORY Bidders conference is scheduled for 9:00 AM on May 07, 2026, meet at Piqua City School District Board of Education Offices at 215 Looney Road, Piqua, OH 45356.**

B. Representatives of the Owner and Architect will be in attendance.

C. Summarized minutes of this meeting will be circulated to known Bidders if necessary. These minutes will form part of Contract Documents.

D. Information relevant to Bidding Documents will be issued by Addendum.

1.13 BIDDER QUALIFICATIONS

A. After bid submittal, the Contractor may be required to demonstrate qualification for performing the Work of this Contract with the completion of a Contractor's Qualification Statement [AIA A305] and / or providing evidence of successfully completed similar projects [of similar size, complexity, timelines, etc], previous experience, current commitments, manpower availability, sub-contractors, as well as financial position.

1.14 SUBMISSION PROCEDURE

A. Bidders shall be solely responsible for delivery of Bids in manner and time prescribed. Bids received after the time and date established for the receipt of Bids will be returned unopened. Verbal, telephone, facsimile, or email/electronic bids will not be considered.

B. Submit all copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the Owner and shall identify the Project Name, and the Bidder's Name, address, and contact information. If the Bid is sent via USPS or delivery service, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face.

C. Improperly completed information, irregularities in Bid, may be cause not to open the Bid Form envelope and declare the Bid invalid or informal.

D. An abstract summary of submitted Bids will be made available to all Bidders present following bid opening.

1.15 BID INELIGIBILITY

A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may be declared unacceptable at Owner's discretion.

B. Failure to acknowledge addenda may be cause for disqualification of the bid at the discretion of the Owner.

C. Failure to provide security deposit, bonds or insurance requirements will invalidate the Bid at the discretion of the Owner.

D. Bid Forms, Appendices, and enclosures which are improperly prepared may be declared unacceptable at Owner's discretion.

1.16 BIDDER'S REPRESENTATION

A. The Bidder by submitting a Bid represents that:
   1. The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.
   2. All units expressed in the bid documents are approximate, and it is the contractor's exclusive responsibility to thoroughly review the project site and verify Work prior to submitting a bid. Any variance or discrepancy in work scope must be submitted in writing prior to bid. Submission of bid indicates all Work is agreed upon and all bid documents have been read and understood. Any questions regarding the bid documents have been addressed before submittal. Questions should be submitted in a formal email request to the Architect at least five [5] days before the Bid Due Date. A formal response will be issued via addendum if required. Any discrepancy discovered after award will be decided in the favor of the Owner.
   3. The Bid is made in full compliance with the Bidding Documents.
   4. Compliance with all applicable regulations to the described work will be met.
   5. The Bidder has visited the project site, become familiar with the conditions under which the work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.
   6. The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.
   7. The work can be performed as described, in the time period allotted, for the price provided on the Bid Form.

B. Submission of a bid shall be considered the Contractor's Certification that the bid is based upon equipment and/or materials that meet or exceed the standards set forth by specification or equipment and/or materials identification. Should a Contractor's product be determined not equal to that specified, the Contractor shall be required to provide and install a product acceptable as equal by the Architect at no additional cost to the Owner.

C. The submission of a bid shall indicate that the Contractor has visited the project site and is familiar with the conditions as they exist, and the modifications that may be necessary to provide a complete and professional finished project.

1.17 PREPARATION OF BIDS / DOCUMENTS

A. Bids shall be submitted on the Bid Form included with the Bidding Documents.

B. All blanks on the Bid Form shall be legibly executed in ink.

C. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

D. Interlineations and alterations must be initialed by the Signer of the Bid.

E. All requested Alternates shall be Bid. If no change in Base Bid is required, enter "NO CHANGE".

F. Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the Bid Form nor qualify the Bid in any other manner.

G. Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally

authorized to bind the Bidder to a contract. A Bid by a Corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

H. Bidder has the option not to submit a bid on any one of items of the Bid Form, in this case the words "NO BID" shall be noted on the Bid Form corresponding to that Item.

I. The following documents must be provided as part of the bid submittal:
   1. Bid form [2 copies]
   2. Bid Guaranty/Contract Bond or Check or Bond.
   3. Affidavit regarding bidder's property taxes.

1.18 BID SECURITY / CONTRACT BOND

A. Each Bid shall be accompanied as follows and other requirements as noted in the contract documents:
   1. Bid Security for 10% of the highest amount quoted, written on a cashier's check, certified check or surety company bond pursuant to Chapter 1305 and section 153.54 of the revised code in the amount of a sum no less than 10 percent of the Bid Price drawn in favor of the Owner.
   2. If a bid security is only submitted with the bid, each successful bidder is required to furnish a Performance Bond and Labor and Material Bond [AIA Form A312] in the amount of 100% of the full contract amount.
   3. If a bid guaranty and contract bond [Form Enclosed] in the amount of 100% of the highest amount quoted is submitted with the bid, no additional bonds are required.

B. Endorse Bid Bond in name of the Owner as obligee, signed and sealed by the principal [Contractor] and surety.

C. Endorse certified check in name of the Owner.

D. Security deposit of accepted Bidder will be returned after delivery to the Owner of the required Performance and Payment Bonds by the accepted Bidder.

E. Include the cost of security deposit in the Bid Price.

F. After a Bid has been accepted, security deposits will be returned to the other respective Bidders. The Owner shall have the right to retain the bid security of Bidders whom an award is being considered until either the Contract has been executed and the bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.

G. If no contract is awarded, security deposits will be returned.

1.19 SELECTION AND AWARD OF ALTERNATES

A. Indicate variation of Bid Price for alternates listed in the Bid Documents. This form requests a "difference" in Bid Price by adding to or deducting from base Bid Price.

B. Bids will be evaluated on total of base Bid Price with any accepted alternates as applicable. Alternates can be selected in any order and/or combination as chosen by the Owner.

1.20 BID OPENING

A. Bids will be opened immediately after time for receipt of Bids.

B. Bidders will be notified within three days if they are the low bidder.

C. Piqua City Schools Board of Education will provide approval of the lowest responsive bid.

1.21 MODIFICATION OF BID

A. Bids shall remain open to acceptance and shall be irrevocable for a period of ninety [90] days after bid closing date. No bidder shall modify, withdraw or cancel the Bid or any part for the period of ninety [90] days.

B. Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing and include the signature of the Owner. Confirmation shall be received and time/date stamped by the receiving party. Any change shall be worded such not to reveal the amount of the Bid. Bid Security shall be in the amount sufficient for the Bid resubmitted.

1.22 ACCEPTANCE OF OFFER

A. The Owner reserves the right to accept or reject any or all offers for any reason.

B. The Owner intends to award a Contract to the lowest qualified Bidder for each bid item provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available and the Board approves the project. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

C. Award will be as outlined in Article below.
   1. The Bid must be submitted by a qualified bidder as determined by the Owner. In determining whether a bidder is qualified, the following factors will be considered:
      a. Demonstrated ability to successfully complete previous projects of a similar size, scale, and complexity on a compressed time schedule.
      b. Clear indication of due diligence by the Bidder to outline the project schedule to meet the construction schedule requirements.
      c. Past experience of the Bidder,
      d. Financial Condition of the Bidder,
      e. Conduct and performance of Bidder on previous contracts [includes workmanship, meeting deadlines, available sufficient skilled manpower, safety record, and overall project commitment]
      f. Any past or pending litigation involving the Bidder.
   2. If the lowest Bidder is not determined to be qualified by the Owner, the next lowest Bidder qualifications will be reviewed. The review will continue until a qualified Bidder is obtained.
   3. The Owner may choose to inquire as to the Architect's knowledge with any Bidder under consideration for the project. The Architect and all its employees shall be indemnified and held harmless for any effect such information may have on the decision of the Owner as to the Bidder's qualifications.
   4. The Owner intends to award the project, regardless of the award, phasing, etc. to [1] qualified contractor. It is not intended to enter into contracts with multiple contractors for each building / major component / alternate.

D. Public Bid Opening Evaluation: Initial evaluation of the bids received for the project will be as follows:
   1. Bid Amount[s] submitted, including alternates.
      a. Bids will be evaluated on the total bid amount with any accepted alternates as applicable.
   2. Submission of the appropriate bid bond, affidavits, and other requested forms / documents.

E. Post-Bid Evaluation: Subsequent evaluation of the bids received for the project will be as follows:

1. The Owner and Architect may elect to engage in post-bid interviews with the lowest qualified bidder[s] of the project from of the public bid opening to determine the lowest and best qualified bidder.
2. The Owner may elect to engage interviews with multiple bidders at their discretion as time is of the essence to provide a formal recommendation to the Board of Education at their board meeting.
3. The Architect will contact the bidders proposed to be interviewed within one [1] week after the public bid opening.
4. These post bid interviews will be conducted within two [2] weeks after the bid opening at an undisclosed time.
5. At the time of the post-bid interview, the Contractor shall provide the following documentation for consideration:
    a. Demonstrated performance history / references for projects of similar size, scale, and complexity accomplished on a compressed construction schedule.
    b. Demonstrated performance of the Critical Path Construction / Project Schedule, including multiple shift work, critical path items, potential problems in the schedule
    c. Availability of in-house Contractor manpower and staffing of the project
    d. Proposed project manager and project superintendent[s]
    e. A full list of Proposed Sub-Contractors
    f. Confirmation of Sub-Contractor manpower availability
6. The Owner and Architect plan to use the post-bid interviews as a confirmation by the Contractor that they understand the intended scope, deliverable product to the Owner, project schedule, etc.

F. The Owner shall have the right to accept the Bids and Alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Bid and Alternates accepted.

G. The Owner reserves the right to evaluate on any other criteria deemed necessary including non-monetary criteria such as past performance, references, schedule, manpower availability, etc. These criteria are at the sole discretion of the Architect and Owner.

H. The Owner reserves the right to further negotiate with the bidders at their discretion for additional cost savings and/or value engineering alternatives if desired to meet funding limitations, budgets, or phasing opportunities.

1.23 OWNER'S FINANCIAL CAPABILITY

A. The Owner shall, at the request of the Bidder under award of a contract, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

1.24 SUBMITTALS

A. The Bidder shall, after the notification of award, furnish to Architect in writing:
1. Designation of Work to be performed with the Bidder's own forces.
2. Names of manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work as outlined herein.
3. Names of persons or entities proposed for the principal portions of Work.

B. The Bidder will be required to establish to the satisfaction of the Owner the reliability and responsibility of the persons or entities to furnish and perform the Work described in the Bidding Documents.

C. Prior to the execution of the Contract, the Architect will notify the Bidder in writing of either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a person or entity, the Bidder may submit an acceptable substitute person or entity. No adjustment shall be made to the Base Bid.

D. Persons and entities proposed by the Bidder and accepted by Architect and Owner must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Architect and Owner.

1.25 PERFORMANCE AND PAYMENT BOND

A. This contract shall require a Performance & Payment Bond in the amount of 100% of the contract amount. Surety shall be a corporation authorized to do business in the State of Ohio. The bond shall remain in force for a period of one [1] year after completion of the work.

B. The cost for Performance & Payment Bond shall be included in the Bid.

C. The Bidder shall deliver the required bonds to the Owner not later than three days following the date of the execution of the Contract.

D. Notify the Owner in writing if the Bid Guaranty and Contract Bond converts to a Performance and Payment Bond. If the work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such Bonds will be furnished and delivered.

1.26 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. AIA Document A104 "Standard Abbreviated Form of Agreement between Owner and Contractor", 2017 Edition will be used for this project.
   1. The Architect will draft the AIA Agreement and distribute for review and signature by the Contractor and Owner.
   2. A fully executed, signed copy of the agreement will be provided to the Contractor by the Owner or Architect.

END OF SECTION

BID FORM

To: Piqua City School District
215 Looney Road
Piqua, OH 45356

Having carefully read and examined the "Scope of Work", "Specifications", "Plans", and any addendum for:

PARKING LOT IMPROVEMENTS 2026
PIQUA HIGH SCHOOL
1 Indian Trail
Piqua, OH 45356

As prepared by:
RDA Group Architects, LLC.
7662 Paragon Road
Dayton, OH 45459
Phone: 937.610.3440

And having inspected the premises and all conditions affecting the work, the undersigned proposes to furnish all materials and perform all labor necessary for the performance and completion of the work indicated below, all in compliance with the documents named above, and further agrees that each separate item of trade or employment further agrees that, if any or all of said bids are accepted, he will enter into a Contract according to the form required by the Owner for the faithful performance of the labor and the furnishing of all materials included in such bid or bids so accepted.

Submitted by: _____
[Contracting Firm]

Having read and examined the Contract Documents, prepared by the Associate for the above-referenced Project, and the following Addenda:

Addendum No.	Date of Receipt
_____	_____
_____	_____
_____	_____

The undersigned Bidder having full knowledge of the site and the requirements of the Project proposes to perform all Work in accordance with the Contract Documents for the Sums as indicated on this Bid Form:

BASE BID ITEM #1: PARKING LOT IMPROVEMENTS: ALL LABOR, MATERIALS, EQUIPMENT, FREIGHT and PERMIT FEES for the sum of

Area 'A' Labor / Materials $_____

Area 'B' Labor / Materials $_____

Area 'C' Labor / Materials $_____

Contingency Allowance: $ 100,000

Permit Allowance: $ 5,000

Base Bid Item #1 including All Allowances [sum of the above]

$_____ $_____
[FIGURES] [WORDS]

ADD ALTERNATE #1: ADD PARKING LOT IMPROVEMENTS AT THE TENNIS COURTS [AREA D] TO THE SCOPE OF THE PROJECT: ALL LABOR, MATERIALS, EQUIPMENT, FREIGHT and PERMIT FEES for the sum of

ADD to the Base Bid for the sum of:

$_____ $_____
[FIGURES] [WORDS]

ADD ALTERNATE #2: ADD REMOVAL AND REPLACEMENT OF EXISTING PARKING LOT LIGHTING AT THE FOOTBALL PARKING LOT TO THE SCOPE OF THE PROJECT: ALL LABOR, MATERIALS, EQUIPMENT, FREIGHT and PERMIT FEES for the sum of

ADD to the Base Bid for the sum of:

$_____ $_____
[FIGURES] [WORDS]

ADD ALTERNATE #3: ADD FINISH WEAR COURSE OF ASPHALT AT THE PARKING LOT IMPROVEMENTS AT THE TENNIS COURTS [AREA D] TO THE SCOPE OF THE PROJECT: ALL LABOR, MATERIALS, EQUIPMENT, FREIGHT and PERMIT FEES for the sum of

ADD to the Base Bid for the sum of:

$_____ $_____
[FIGURES] [WORDS]

UNIT PRICE SCHEDULE

None

PROJECT SCHEDULE
Bidder acknowledges the project schedule as stated in the Bid Documents and agrees to complete the work within the contract period scheduled. Failure to complete within the final agreed upon dates as established in the contract may cause the enforcement of liquidated damages per the contract.

_____
[Bidder Initials]

The full name and address of all persons and parties interested in the foregoing proposals as principals are as follows:

Company _____

Name _____

Address _____

_____

Phone _____

Email _____

Bidder's Signature _____

Typed Name _____

Title _____

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CONTRACT

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SECTION 01 10 00 - SUMMARY

PART 1 GENERAL

1.1 DESCRIPTION OF THE PROJECT DOCUMENTS / SCOPE OF WORK

A. The work covered by these specifications consists of furnishing all labor, materials, and equipment necessary in connection with the Parking Lot and Site Improvements at Piqua High School for Piqua City School District.
   1. Work includes items as shown, subject to the terms and conditions of the contract, specifications and the drawings as listed.

B. Provide all materials and labor for work as noted herein for a complete project.
   1. IMPORTANT: Field verify all existing conditions, and coordinate all applicable requirements as related to the scope of the work.
   2. Drawings indicate general diagrammatic areas/extent of work, but in no way indicate the intricate nature of the work required for the successful completion of the project.

C. Provide any and all ancillary work related to the above work scope including repair of any Contractor damaged finishes within the work area.

D. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

1.2 CONTRACT / TEAM IDENTIFICATION

A.	Project Identification:	Parking Lot Improvements
B.	Project Location:	Piqua High School 1 Indian Trail Piqua, OH 45356
C.	Owner:	Piqua City School District 215 Looney Road Piqua, OH 45356 937-773-4321 phone
D.	Architect:	RDA Group Architects, LLC 7662 Paragon Road Dayton, OH 45459 937-610-3440 phone
E.	Civil Engineer:	Burkhardt Engineering 28 North Cherry Street Germantown, OH 45327 937-388-0060 phone
F.	PME Engineer:	L2 Engineering 7945 Washington Woods Drive Dayton, OH 45459 937-361-6731 phone
G.	Geo-Technical Engineer:	Bowser Morner 4518 Taylorsville Road Dayton, OH 45424 937-236-8805 phone

1.3 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

B. The term 'RDA' or 'Architect' as referenced in these contract documents is RDA Group Architects.

C. The term 'Owner' as referenced in this specification is Piqua City School District.

1.4 SCOPE OF WORK

A. Work of the Project includes the parking lot and site improvements at Piqua High School as outlined.
   1. All specific scope items shall be coordinated and reviewed on the drawings and specifications as applicable.

1.5 CONTRACTOR'S USE OF SITE[S] / SITE CONTROL

A. The adjacent site areas to the work of the project are currently in use and will remain in use throughout the duration of the project. Take all measures necessary to minimize the impact on the occupants, provide protective measures at areas of work.
   1. Provide protective measures at areas of work and at areas traversed to access the work area – i.e. hallways, doorways, etc.

B. Coordinate work to allow continued Occupancy of the buildings – Piqua High School. Piqua Junior High, Accessory Buildings, Alexander Football Stadium, adjacent parking lots, driveways, access points, etc. throughout the duration of the project. Minimize impact to Owner operations and Occupants.

C. Coordinate with Owner any activities which have the potential to affect continued operations of the facilities or impact life safety, security, etc.

D. Work Schedules: Typical work hours are 6 AM to 5 PM. There are no limit on work hours during this project, unless so stated by the Owner for special events, activities, etc. which may be occurring on the high school campus. Coordinate after hours and / or weekend work in advance for approval by the Owner.
   1. Include any / all costs for overtime and/or a second shift crew, weekend work, etc. in the bid amount, including all applicable sub-contractors to ensure that the project is completed during the contract period.
   2. Coordinate and schedule all aspects of the work, including how various disciplines work together, are sequenced, etc.
   3. Weekend and overtime work or increasing crew size may be required by the Owner at no additional cost if the Contractor fails to meet projected dates as prescribed in the contract and the progress schedule.
   4. Coordinate schedule / activities so as not to inconvenience the Owner unnecessarily.
   5. Coordinate schedule / activities with holidays, etc. so as not to inconvenience the Owner unnecessarily over holidays, weekends, etc.

E. Provide appropriate notification of Owner prior to starting work and throughout the duration of the project.

F. Staff project every day with a full crew capable of timely completion of work. Confirm that all materials, accessories, and other components are on-site and ready for installation prior to beginning work for each work day. Advise project team if there are issues with scheduling prior to starting of work.

G. Coordinate deliveries around school start and end times [and respective bus routes] and allow safe ingress and egress of pedestrian and vehicular traffic around the building.

H. Construct temporary fencing around the project areas. Coordinate with Owner on location and size of staging areas.

1.6 CONTRACT PERIOD / TIME OF COMPLETION

A. Notice to Proceed / Date of Commencement: May 26, 2026
   1. Owner-Contractor Agreement or Notice to Proceed will be issued establishing the agreed upon construction start date.
   2. Final schedule will be coordinated with the Contractor.
   3. Provide a work start date within [7] calendar days upon issuance of the Owner-Contractor Agreement.
   4. Consideration of material lead-times and permit issuance will be given for establishing the NTP dates if applicable.
   5. Notify the Architect, in writing, upon determination of any delay in material delivery or the issuance of building permits.
   6. Coordinate schedule, phasing, and implementation of the work.

B. Date of Substantial Completion: August 1, 2026.

C. Contract Completion: October 30, 2026.

D. A contract will be issued in **early May 2026**, after approval of the project by the Owner.
   1. The Contractor will be responsible to execute the project to allow shop drawings and product submittals to be prepared as quickly as possible such that the materials can be ordered with sufficient lead time to permit the work to be executed as scheduled prior to the date of substantial completion.

E. Notify Owner in writing fourteen [14] days prior to the Contract Completion date if an extension of contract time is necessary with a request for the extension and the reasoning for such request.

F. Liquidated Damages will be enforced for the failure to complete work in the specified contract period per Owner requirements.

1.7 WORK BY THE OWNER

A. Owner will separately contract for the following:
   1. Third Party Special Inspections
   2. Landscaping [separate bid package]
   3. IT equipment and CCTV cameras

B. Coordinate any / all aspects of Work by Owner as they interface with Work.

1.8 PERMITS

A. Architect will apply for applicable building and zoning permits with the Authority Having Jurisdiction.

B. Pickup and pay for all applicable building and zoning permits once approved.
   1. Refer to Project Allowances for applicable permit allowance.

C. Furnish all required contractor trade permits as well as any other required permits for work in the right of way, etc.

1.9 APPLICABLE REFERENCES AND CODES

A. References will be found in each section that applies to that section.

B. Conform to reference standards by date of issue current as of date of Contract Documents.

C. When specified reference standard conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with the Ohio Building Code requirements as they relate to the work.

1.10 CONTRACTOR / GENERAL REQUIREMENTS

A. Protect all finishes, site amenities, previous development, and equipment scheduled to remain.

B. Commence and complete work as noted in the contract.

C. Coordinate equipment delivery and equipment staging with Owner prior to start of project. Anticipate no on-site storage being provided by Owner.

D. Pre-determine work phases with Owner to minimize disruption to operations.

E. Furnish labor, materials, equipment, and management required to complete the project.

F. Furnish all required logistics required to accomplish the work – including lifts, scaffolding, ladders, trash chutes, safety equipment, temporary protection, daily night seals / weather protection, etc.
   1. Coordinate and receive Owner approval for all staging and laydown areas, contractor parking, etc. prior to the start of work.
   2. Provide protection of all existing pavement, turf, landscaping, etc. from damage during construction. Restore site to original / like new condition upon completion of the work.
   3. Provide temporary protection, barricades, enclosures at other building areas such to contain the construction area, and to minimize the transfer of dust, odors, etc.

G. Visit the site to become thoroughly familiar with all working conditions, check and verify all dimensions, and site conditions. Any dimensions given or referred to in the specification or drawing are to be used purely as approximate and not as a basis for exact amounts for bidding. Promptly advise Architect of any discrepancies, errors with the specifications and drawings before bidding the work.

H. Provide a valid Certificate of Insurance, follow all Workman's Compensation requirements and regulations.

I. Provide all bonds, payment schedule, insurance as noted in the contract documents.

J. Pay for all building permits, trade permits, ROW permits, and any other required permits and inspections necessary to complete all work related to these specifications. Comply with Federal, State, and Local Codes.

K. Provide dumpsters or trash containers needed for construction purposes. Do not use Owner dumpsters or trash containers at any time for removal of materials, trash, or debris related to the Contractor's work. Remove debris from the site regularly and be placed within appropriate trash receptacles. Keep all work areas neat at all times. Take all considerations for safety. Do not leave trash or debris on the ground / around the project site.
   1. Run magnet around work areas daily to pickup stray nails, etc. when appropriate.

L. Take special care not to allow dust and debris to fall onto any equipment, material, personnel, or any room below the deck.

M. Safety: Take all safety precautions necessary or directed to ensure public safety.
   1. Neither Architect nor Owner are safety consultants. Any and all safety provisions shall be managed and coordinated by the Contractor.
   2. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.
   3. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.
   4. Maintain job site in a neat and orderly fashion at all times.

N. Conduct all work according to OSHA recognized safe work practices. **COMPLY WITH APPLICIBLE OSHA STANDARDS, INCLUDING 1926 – REGULATIONS FOR CONSTRUCTION.**
   1. Non-compliance shall be a basis for making a bid non-responsive.
   2. If Contractor or sub-contractor is found to be in **VIOLATION (NON-COMPLIANCE) AT ANY TIME**, this could be a basis for termination of the purchase order/contract.

O. IMPORTANT: Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.

P. The plans and specifications are intended to depict the general scope, layout and quality of workmanship required. The documents are not an "instruction manual" to execute the work nor are they intended to show or describe in detail every item necessary for the proper installation of the work. The means and methods required to execute the work described is the sole responsibility of the Contractor. The Contractor shall include the ancillary work required, whether explicitly stated or not, for the proper completion of the work as intended. The Contractor is required to meet or exceed building code requirements, applicable industry standards, ASTM standards, and/or manufacturer installation requirements as they relate to the work.

Q. The plans and specifications represent a single complete design package indicating the intended scope of the project in its entirety. As such, the project is structured to be awarded to a single Prime Contractor. The documents do not delineate bid packages or assign responsibilities to any subsequent subcontractors, dictate construction sequencing, nor provide coordination between any "trades". Such activities are the responsibility of the holder of the construction contract. In the event of a discrepancy within the drawings or between the drawings and the specifications, the more stringent requirement represented in the documents shall prevail.

R. Do not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Report such errors, ambiguities and discrepancies to the Architect immediately for clarification, revision, or correction prior to the submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.

S. Submission of a bid shall be considered the Contractor's Certification that the bid is based upon equipment and/or materials that meet or exceed the standards set forth by specification or equipment and/or materials identification. Should a Contractor's product be determined not equal to that specified, the Contractor shall be required to provide and install a product acceptable as equal by the Architect at no additional cost to the Owner.

T. The submission of a bid shall indicate that the Contractor has visited the project site and is familiar with the conditions as they exist, and the modifications that may be necessary to provide a complete and professional finished project.

U. There is a strict **NO SMOKING** policy for all work. Any worker found smoking on the jobsite will be subject to removal from the project. No exceptions. Habitual offenders may be subject to a fine in the amount of $500 per occurrence.

V. Security: Contractor's Liability for Vandalism
   1. Secure and protect the project which is under the control of the Contractor. Include all such expenses for the securement and protection of the project, and for the repair and replacement of the work until that portion of the work is accepted as complete by the Owner. Take all measures necessary to provide such security.
   2. Promptly repair or otherwise remedy any and all damages, at Contractor's expense, to said portion of the project and of the accepted construction work caused by vandalism.
   3. Indemnify and hold the Owner harmless from and against all damages, liabilities, costs and expenses, including, without limitation, reasonable attorney fees, which may be

imposed upon or incurred by the Owner as a result of the Contractor's failure to comply with the requirements of this section.

W. Insurance: Contractor shall be required to carry and submit evidence of manufacturer's and contractor's public liability insurance with bodily injury or death and property damage limits of not less than $1,000,000/$1,000,000/$1,000,000 to protect against claims for personal injury or death or damage to property of others and automobile liability on owned and non-owned motor vehicles used on the site/s or in connection therewith for a combined single limit for bodily injury and property damage of not less than $1,000,000 per occurrence.
   1. Provide copy of Certificate of Insurance to Owner.
   2. Submit evidence of Worker's Compensation Insurance coverage
   3. Submit evidence of Builder's Risk Insurance.

X. Damages: Any and all damages to Owner Property shall be repaired equivalent to the existing by the Contractor at no cost to Owner. NO EXCEPTIONS.

1.11 CONTRACTOR QUALIFICATIONS

A. Establish and provide qualifications to Owner for their ability to complete this type of work. Qualifications may be established by:
   1. Provide references of similar projects, past performance, financial disclosures, etc. in the interest of selection of the lowest and best bidder for the project.
   2. Provide a letter of approval for the installation of the products from the manufacturer.
      a. Contractor must be properly trained and approved by the manufacturer for the installation of the products.
   3. Provide a recommendation from the supplier of the products.
   4. Demonstrating to Owner the capability to do the work. Contractor must have a minimum of five years documented experience in similar work.

B. Contractor is responsible for all work performed by the Sub-contractors.

C. Owner has the final authority to request a particular sub-contract not be engaged in the project. If this occurs, Owner and Contractor shall determine if there is an impact to the Contract amount, and negotiate, if necessary, to an adjustment in the Contract amount.
   1. No change to the Contract amount will be permitted if there is a change to the sub-contractor due to them utilizing alternate manufacturers or products that were not approved substitution requests.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Follow all applicable requirements of AIA G201 General Conditions of the Contract for Construction. If there should be a conflict between the Owner Requirements and those herein, the higher standard shall apply.

PART 3 EXECUTION

3.1 CONTRACT ADMINISTRATION

A. Architect is providing contract administration services for this project to the Owner. However, it shall be the responsibility of the Contractor and Owner to coordinate the proposed work, schedules, installations, permits, inspections, etc. as Architect is not on-site every day.

B. Contact Architect for clarification should there be questions regarding the interpretation or intent of the documents, field discovery, etc. that would impact or affect the work as proposed. Architect shall not be liable for deviations, field changes, and Owner changes during construction.

C. Field confirm all existing conditions, proposed installations and how they interface to ensure the systems can be installed per the intent of the documents and to meet applicable building

and zoning codes, local requirements, Owner requirements, provide a watertight detail, meet aesthetic requirements, etc.

D. Meet all applicable building and zoning codes requirements whether specifically noted herein or not. Building codes represent the minimum acceptable standard.

E. Install all products, materials, installations, and the like in accordance with applicable industry standards, applicable manufacturer's details and instructions, in accordance with best practices, and building code provisions. The manufacturer details / requirements are the minimum acceptable standard, Architect's drawings may require additional work.

3.2 GENERAL PROJECT REQUIREMENTS

A. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.

B. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.

C. Job sites will be maintained in an orderly and neat fashion at all times.

D. Pre-determine work phases with Owner to minimize disruption of business operations.

END OF SECTION

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SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Schedule of values.

B. Applications for payment.

C. Change procedures.

D. Unit prices.

E. Alternates.

F. Project Allowances.

G. Defect assessment.

1.2 PREVAILING WAGE / PAYROLL REPORT REQUIREMENTS

A. Not Applicable

1.3 TAXES

A. Pay all applicable taxes, including applicable sales and use taxes, and other taxes as required by governing law.
   1. Owner is a tax-exempt entity.
   2. Owner will provide tax exempt forms upon request.
   3. Owner will not compensate or reimburse Contractor for any taxes paid on the project.

1.4 RETAINAGE

A. Owner will withhold retainage in the amount of four percent [4%] from the payment otherwise due [for both labor and materials] of each progress Application for Payment up to substantial completion, after which no further retainage will be withheld providing work is performing satisfactorily.

B. Retainage will be released in accordance with the Terms of the AIA A104 Agreement.

1.5 STORED MATERIALS [ON OR OFF SITE]

A. Owner will pay for materials stored on-site.

B. Owner will pay for materials stored off-site providing proper documentation of the stored materials is provided, including documentation of location of stored materials, supporting invoices, shipping / bill of lading, photo documentation, and proper insurance [paid for by the Contractor] is in place at the location of stored materials.

1.6 SCHEDULE OF VALUES

A. Submit schedule of values on AIA G702 / G703 forms.

B. Submit Schedule of Values three [3] days prior to the Pre-Construction meeting for approval by Architect and Owner.

C. Approved Schedule of Values will be signed at the Pre-Construction meeting.

D. Format:
   1. Utilize Table of Contents of this Project Manual [CSI Divisions].
   2. Identify each line item with number and title of major specification Section.
   3. Identify each applicable CSI division / defined work scope / component.
   4. Identify site mobilization, general conditions, bonds and insurance.

5. Identify separate line item for each allowance and alternate [as applicable]

E. Schedule of values should be broken down by building / address.

F. Revise schedule to list approved Change Orders, with each Application for Payment.

1.7 APPLICATIONS FOR PAYMENT

A. Submit each application for payment on AIA G702/G703 forms.
   1. Provide an invoice number on the application for payment, or provide a cover letter invoice on company letterhead with an invoice number.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
   1. Complete every entry, notarize and execute by a person authorized to sign document on behalf of the Contractor. Include amounts for work completed following previous Application for Payment whether or not payment has been received, include amounts of Change Orders issued before last day of construction period covered by application.
   2. Stored materials included in application must have supporting documentation that verifies amount required, do not include overhead and profit on stored material.
   3. Each application for payment following the initial Application for Payment shall be consistent for payment with previous applications.

C. Payment Period: Monthly.

D. "Pencil Copy": Submit one week prior to application for payment for review and approval by Architect and Owner. Submit Electronically to Architect in PDF format unless directed otherwise.

E. "Application for Payment": Upon acceptance of the "Pencil Copy", submit the "Application for Payment. Submit Electronically to Architect in PDF format unless directed otherwise. Architect will review, certify for payment, and submit to Owner.
   1. Submit updated construction schedule with each Application for Payment as applicable to the work.
   2. Submit all required waivers of lien / partial release of lien [including applicable subcontractors] in accordance with Owner requirements.
   3. Submit certified payroll reports for all contractors if applicable.

F. Failure to submit required paperwork, including supporting documents can delay the processing of the Application for Payment.

1.8 CHANGE PROCEDURES

A. Construction Bulletin: Architect / Owner may issue a Construction Bulletin [Proposal Request] including a detailed description of proposed change with supplementary or revised Drawings and specifications. Prepare and submit estimate within 7 days.

B. Stipulated Sum/Price Change Order: Based on Proposal Request / Construction Bulletin and Contractor's fixed price quotation.

C. Unit Price Change Order: For contract unit prices and quantities, the Change Order must be executed prior to beginning any work. The Change Order will be based on fixed unit price basis provided in the Bid Form.

D. Architect will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on Architect's approved forms.

E. Architect will issue a Change Order for all changes to Contract Sum and for all changes to the Contract Time upon Owner's approval of a proposal from Contractor.

F. Change Order Forms: AIA G701 or other approved forms with all required backup documentation.
   1. No "change order" will be prepared for costs expended from project allowances which do not require a change to contract sum or time.

G. Correlation Of Contractor Submittals:
   1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
   2. Promptly revise construction progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
   3. Promptly enter changes in Project Record Documents.

H. Important: All change orders must be fully executed prior to beginning any work. Failure to comply will result in contractor request being denied and completed at no cost to Owner.

I. Maximum mark up for overhead and profit on change orders shall be 15%.

1.9 UNIT PRICES

A. Document unit price quantities. Architect / Owner will confirm quantities as required. Contractor may not be paid for unit cost work without documentation of the work accomplished.

B. Unit Price Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.

C. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect / Owner multiplied by unit price for Work incorporated in or made necessary by the Work.

1.10 UNIT PRICE SCHEDULE

A. None

1.11 ALTERNATES

A. Alternates listed on Bid Form will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work.

1.12 SCHEDULE OF ALTERNATES

A. Add Alternate #1: Add Parking Lot Improvements at the Tennis Courts [Area D] to the Scope of the Project.

B. Add Alternate #2: Add removal and replacement of the existing parking lot lighting at the Football Parking Lot to the Scope of the Project.

C. Add Alternate #3: Add final wear course of asphalt at Parking Lot Improvements at the Tennis Courts [Area D] to the Scope of the Project.

1.13 PROJECT ALLOWANCES

A. Contingency Allowance:
   1. Provide in bid a draw down allowance in the amount of **$100,000 [one hundred thousand dollars]** for use as a project contingency allowance.

B. Building Permit Allowance:

1. Provide in bid a draw down allowance in the amount of **$5,000 [five thousand dollars]** for securing applicable building permits.

C. Material Replacement Allowances:
   1. None

D. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit are included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

E. Do not expend or proceed with work outside of the scope of the project which utilizes the contingency allowance without authorization and approval of Architect and Owner.

F. Identify and track actual expenditures as they occur over the duration of the project not afterward. Any work commenced without Owner approval is at Contractor's risk. Maintain a running tally of the remaining balance of each allowance.

G. Credit back to the Owner any unused funds at the end of the project via a Change Order.

1.14 FINAL APPLICATION FOR PAYMENT

A. Refer to provisions in Section 01 77 00 for Application for Payment at Substantial Completion.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Architect / Owner, it is not practical to remove and replace the Work, the Architect / Owner will direct appropriate remedy.

C. Authority of Architect / Owner to assess defects and identify payment adjustments is final.

D. Non-Payment For Rejected Products: Payment will not be made for rejected products.

END OF SECTION

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDES

A. Includes administration and procedural requirement for Substitutions.
   1. Substitutions' for Cause: Changes due to project conditions, such as unavailable of product.
   2. Substitutions' for Convenience: Changes that may offer advantages to the Owner.

1.2 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
   1. Architect / Owner is the decision maker if the proposed "approved equal" is in fact equal and approved. Any decision rendered is final.
   2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to "approved equal" and includes within their bid without a formal approval is doing so at their own risk.

1.3 SUBSTITUTIONS PROCEDURES

A. The materials, products, and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. The burden of proof of the merit of the proposed substitution is upon the Bidder. Absolutely no substitutions shall be considered after the Contract award unless specifically noted in the Contract Documents. All substitution requests must come from a bidding Contractor [not materials suppliers, etc].

B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

C. A request constitutes a representation that the Bidder:
   1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
   2. Will provide same warranty for Substitution as for specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.

D. Substitution Procedure
   1. **Submit copy of request for Substitution for consideration to Architect no later than five [5] days before bid opening date**.
   2. Submit shop drawings, product data, and applicable certified test results attesting to proposed product equivalence. Burden on proof is on proposer.
   3. Architect will notify Contractor in writing of decision to accept or reject request within two [2] days of receipt of request or request additional information or documentation for evaluation.
   4. Limit each request to one proposed Substitution.
   5. Requests shall include the name of the material or equipment for which it is to be substituted and a completed description of the proposed substitution.
   6. Architect/Owner will notify Contractor in writing of decision to accept or reject request.
   7. Substitution requests shall only be submitted by registered bidders for the project.

E. Substitutions will not be considered when they are indicated or implied on Submittals, without written request or when acceptance will require revision to the Contract Documents.

F. If the Substitution requires modifications to the Contract / Bidding Documents, the cost for updating the documents shall be paid by the Contractor making the request.

G. Substitutions will not be considered after award of the project without justification.

H. Approved substitutions will be identified by Addenda.
   1. Bidders shall not rely upon approvals made in any other manner.

I. In submission of substitutions to Products specified, Bidders shall include in their Bid, changes required in the Work and Contract Price to accommodate such approved substitutions. Later claims by the Bidder for an addition to the Contract Time or Contract Price because of changes in Work necessitated by use of substitutions will not be considered.

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and project conditions.

B. Construction Progress Schedules

C. Preconstruction meeting.

D. Progress meetings.

E. Pre-installation meetings.

F. Daily Job Logs.

G. Cutting and patching.

H. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Project Manual / Specifications and Drawings to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
   1. Coordination Drawings: Prepare as required to coordinate all portions of Work.
   2. Coordination Meetings: In addition to other meetings specified, hold coordination meetings with personnel and subcontractors to ensure coordination of Work.

D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements. Coordinate rough in locations for accessibility, clearances, maneuvering, etc.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD VERIFICATION

A. Prior to ordering materials, verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Illustrate order and interdependence of activities and sequence of work; how start of given activity depends on completion of preceding activities, and how completion of activity may restrain start of subsequent activities. Illustrate complete sequence of construction by activity.

Arrange schedule on a weekly basis identifying the first work day of each week. [Critical Path Schedule]

1. Work Sequences, order of operations, constraints, and milestones for the project, including all applicable Subcontract Work.
2. Material / equipment lead times.
3. Punchlist Activities
4. Substantial Completion and Contract Completion Dates.
5. Move-in and other preliminary activities.
6. Equipment and equipment system test and startup activities.
7. Project closeout and cleanup.

B. Submit initial progress schedule within seven [7] days after date of Owner-Contractor Agreement for Architect / Owner review.
   1. Include written certification that major subcontractors have reviewed and accepted proposed schedule.

C. Submit revised and updated schedules with each Application for Payment and as appropriate throughout the duration of the project.
   1. Indicate estimated percentage of completion for each item of Work at each submittal.

D. Review and Evaluation
   1. Participate in joint review and evaluation of schedules with Architect / Owner at each submittal.
   2. Evaluate Project status to determine Work behind schedule and Work ahead of schedule.
   3. Indicate changes required to maintain Date of Substantial Completion.
   4. After review, revise schedules incorporating results of review, and resubmit within three [3] days.

E. Distribute copies of updated schedules to Subcontractors, suppliers, Architect, Owner, and other concerned parties.

1.5 PRECONSTRUCTION MEETING

A. Architect / Owner will schedule preconstruction meeting after Notice of Award for affected parties.

B. Attendance: Architect, Owner, Contractor Project Manager, Foreman / Superintendent

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing parties in Contract, and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.
   8. Use of premises by Owner and Contractor.
   9. Owner requirements for procedures and inspections
   10. Construction facilities and controls provided by Owner.
   11. Security and housekeeping procedures.
   12. Application for payment procedures.
   13. Procedures for maintaining record documents.
   14. Requirements for start-up of equipment.
   15. Inspection and acceptance of equipment put into service during construction period.

D. Architect will record minutes and distribute copies via email after meeting to participants and those affected by decisions made.

1.6 PROGRESS MEETINGS

A. Architect will be providing periodic observation of the work. Architect will issue field reports at each site visit. Architects will be observing the work for compliance with the specifications and will not be responsible for the ways, means and methods of constructing the project or managing the day to day operations.

B. Schedule and administer meetings throughout progress of the Work at bi-weekly intervals.
   1. Provide suitable accommodations for holding meetings on-site with a layout table, chairs, etc.

C. Architect will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.

D. Attendance Required: Job superintendent, major subcontractors and suppliers, Architect, Owner, as appropriate to agenda topics for each meeting.

E. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems impeding planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Coordination of projected progress.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

F. Architect will record minutes and distribute copies via email after meeting to participants and those affected by decisions made.

1.7 PRE-INSTALLATION MEETINGS

A. Determine any and all necessary pre-installation meetings and schedule the same.

B. When required in individual specification sections, convene pre-installation meetings at Project site prior to commencing work of specific section.

C. Require attendance of parties directly affecting, or affected by, Work of specific section.

D. Notify Architect / Owner one week in advance of meeting date.

E. Prepare agenda and preside at meeting:
   1. Review conditions of installation, preparation and installation procedures.
   2. Review coordination with related work.

F. Record minutes and distribute to participants after meeting, and those affected by decisions made.

1.8 DAILY JOB LOGS

A. Maintain a daily job log that indicates the personnel on-site and activities performed (including all sub-contractors)

B. Indicate any safety concerns and incidents.

C. Indicate weather conditions.

D. Indicate any visitors or other personnel visiting the project site.

E. Job log shall be accessible to Architect / Owner upon request.

F. Coordinate activities / work progress with Architect / Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching; restore Work with new Products.

B. Submit written request in advance of cutting or altering elements affecting:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching [including excavation and fill,] to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

H. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated materials, to full thickness of penetrated element. Follow applicable UL assemblies.

K. Refinish surfaces to match adjacent finishes.
   1. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
   2. For painted surfaces, paint entire wall from corner to corner, floor to ceiling.

L. Identify hazardous substances or conditions exposed during the Work to Architect for decision or remedy.

3.2 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.

H. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with neat transition to adjacent finishes.

I. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect for review.

K. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

L. Finish surfaces as specified in individual product sections.

END OF SECTION

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SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Proposed products list.

C. Product data.

D. Shop drawings.

E. Samples.

F. Safety Data Sheets

G. Manufacturer's Instructions

H. Manufacturer's Certificates

I. Construction Photographs

1.2 SUBMITTAL PROCEDURES

A. Submit product data and shop drawings for all applicable components of the project. Refer to individual sections for additional requirements.
   1. Provide a submittal log at the beginning of the project for review by Architect / Owner. Identify proposed submittals by Spec Section.
   2. Architect / Owner review of the submittals will be general in nature and does not relieve the Contractor in any way of the responsibility in compliance with the contract requirements, manufacturer requirements, and/or applicable codes.

B. Accomplish all submittals in a digital [PDF format].
   1. Any hard copies received will be scanned and returned electronically.
   2. Provide those submittals required to maintain orderly progress of the work and those required for early lead time for manufacturer fabrication.
   3. Do not simply download information directly from a manufacturer's website without a review of the information and **identifying the particular products being utilized**.
   4. Mark each component to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this project. Non-identified submittals will be rejected.

C. Provide a Submittal form / cover sheet to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.
   1. Allow space on submittal form / cover sheet for Contractor and Architect review stamps.
   2. Sequentially number transmittal forms.
   3. Mark revised submittals with original number and sequential alphabetic suffix.
   4. Sign off on submittals indicating Contractor review of the data provided.

D. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.

F. Revise and resubmit submittals as required; identify changes made since previous submittal.

G. Schedule / complete all submittals at the beginning of the project / with adequate time to allow the proper ordering of materials for the project.

1. Failure by the Contractor to provide submittals in a timely fashion does not change the project start date nor contract period.
2. Failure by the Contractor to order materials timely is not a reason for selection of an alternate material.

H. Any materials on the job site that have not been reviewed as part of the submittal process are subject to rejection / removal from the job-site. Any work undertaken without review of the submittal data is at the Contractor's risk and subject to rejection or replacement at no cost to the Owner if submittals are not in conformance with the project documents.

I. For each submittal for review, allow seven [7] days excluding delivery time to and from Contractor.

J. Architect will return the annotated submittal file via email as PDF electronic files.

K. Submittals will be marked as follows:
1. NO EXCEPTIONS TAKEN: Distribute copies to subcontractors and related trades.
2. NOTE MARKINGS: Final Release; Proceed with fabrication, taking into account the necessary corrections on submittal and with Contract Documents.
3. NOTE MARKINGS/RESUBMIT: Proceed with fabrication, taking into account the necessary corrections. Resubmit corrected shop drawings before fabrication of this work is complete to obtain a different action marking. Do not allow drawings marked "Resubmit" to be used in connection with installation of the Work.
4. REJECTED: Resubmit shop drawings in their entirety. No fabrication or installation shall be started until shop drawings so marked have been completely revised, resubmitted, and marked by Architect according to preceding Paragraphs.

L. Distribute copies of reviewed submittals as appropriate [electronically as appropriate]. Instruct parties to promptly report inability to comply with requirements.

1.3 PROPOSED PRODUCTS LIST

A. Within fourteen [14] days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.4 SUBMITTALS / PRODUCT DATA / SHOP DRAWINGS

A. Product Data/Shop Drawings:
1. Submitted to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
2. All shop drawings shall be to scale, submit drawings on sheets no larger than 24-inch x 36 inch, all other product data can be on 8 ½ X 11-inch sheets.

B. Samples for Review:
1. Submitted to Architect for review and selection for aesthetic, color, or finish.
2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Owners selection.
3. Submit samples to illustrate functional and aesthetic characteristics of Product.

C. Personnel/Other Contractors
1. Submit a list of all subcontractors and on-site personnel with the list of lead contact and associated phone numbers.
2. Submit emergency contact sheet with contacts for an emergency – 24/7 call list.

D. Contract Items:

1. Submit Certificate of Insurance, Worker's Comp Certificates as required by Owner.
2. Submit bonds if applicable to the contract.
3. Submit a written Construction Schedule / Implementation and Sequencing Plan outlining starting points and length of time to complete work in each section.

E. Site Specific Safety Plan
1. Provide to Owner for their Review.

F. Site Logistics Plan
1. Provide to Owner for their Review.

1.5 SAMPLES

A. Physical Samples: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
1. Physical samples are required to allow Architect to make selections for color and finish. Electronic images of colors/finishes, etc. are not sufficient.

B. Samples For Selection as Specified in Product Sections:
1. Submit to Architect for aesthetic, color, or finish selection.
2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Architect selection.

C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit 2 copies of each sample, Architect will retain 1 copy.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

1.6 SAFETY DATA SHEETS

A. Submit Safety Data Sheets [SDS] on all products directly to the Owner – DO NOT submit to Architect.
1. Safety Data Sheets [SDS] shall not be submitted to the Architect for review.
2. Any SDS submitted to Architect will be returned with no action taken. Architect does not review / approve any SDS sheets. Any submittals provided to Architect with SDS will be rejected, or have the SDS removed / crossed out from the submittal.

B. Safety Data Sheets relate directly to construction safety, which is the sole responsibility of the Contractor.

C. In compliance with the OSHA Hazard Communication Standard (1910.1200, 08-24-1987), Post at the site SDS [Safety Data Sheets] for ALL products classified as hazardous that their firm has knowledge that they will be furnishing, using, or storing on the jobsite during the duration of this Project in accordance with OSHA standards.

1.7 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, [start-up,] adjusting, and finishing, in quantities specified for Product Data.

B. Indicate special procedures, conditions requiring special attention, and special environmental criteria required for application or installation.

1.8 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit certifications by manufacturer to Owner, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Products, but must be acceptable to Architect / Owner.

1.9 CONSTRUCTION PHOTOGRAPHS

A. Provide digital photographs of construction throughout progress of Work as taken by project superintendent as applicable to document the existing conditions, work in progress, completed work, project wrap up, etc. It is in the best interest of the contractor to document the conditions as this is an occupied unit project.

B. Deliver photographs to Architect / Owner upon request. Catalog and index in chronological sequence with date indexed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Submittal / Shop Drawings for the Project. Use for other Projects or purposes is not allowed.

B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
   1. Use of files is solely at receiver's risk. Architect does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Architect of discrepancy and use information in hard-copy Drawings and Specifications.
   2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
   3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
   4. Receiver shall not hold Architect responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
   5. Receiver shall understand that even though Architect has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
   6. Receiver shall not hold Architect responsible for such viruses or their consequences, and shall hold Architect harmless against costs, losses, or damage caused by presence of computer virus in files or media.
   7. Architect reserves the right to assess a fee for the release of the electronic CAD files. Coordinate with Architect as appropriate.

END OF SECTION

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SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control.

B. Construction Procedures

C. Tolerances

D. References.

E. Labeling

F. Mock-up requirements.

G. Examination & Inspection.

H. Testing and Inspection Services [Special Inspections]

1.2 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 CONSTRUCTION PROCEDURES

A. Architect / Owner intends to routinely monitor the Contractor's work and progress. Quality control is an important element which is the responsibility of the Contractor. Provide full cooperation with all inspection steps through the construction process and include such coordination in the base bid of the project.

B. Provide accessibility to the work, including but not limited to ladders, scaffolding, hoisting, etc in order to make all areas of the work available to Architect / Owner. Provide staffing to support these operations.

C. Inspect the Work prior to requesting a punchlist inspection. Address / correct any deficiencies and provide written confirmation of such with the request to schedule the punchlist inspection by the Architect / Owner. Refer to Section 01 77 00.

D. Owner will coordinate and schedule an anniversary inspection for the one year interval following acceptance of the project.

1.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.5 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.6 LABELING

A. Attach label from agency approved by Authority having Jurisdiction for products, assemblies, and systems required to be labeled by Applicable Code.

B. Label information: include manufacturer's or fabricator's identification, approved agency information, and the following information, as applicable, on each label.
   1. Model number
   2. Serial number
   3. Performance characteristics

C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.7 MOCK-UP REQUIREMENTS

A. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes as directed by Architect / Owner.

B. Accepted mock-ups shall be comparison standard for remaining Work follow requirements of individual sections.

C. Where mock-up has been accepted by Architect / Owner and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.8 TESTING AND INSPECTION SERVICES [SPECIAL INSPECTIONS]

A. Owner will employ and pay for specified services of on an independent firm to accomplish Third Party Special Inspections as outlined on the Drawings.

B. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
   1. Notify independent firm **24** hours before expected time for operations requiring services.
   2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.

C. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.

D. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Architect. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum.

E. Agency Reports: After each test, promptly submit an electronic copy of report to Architect, Contractor, and Owner. When requested by Architect, provide interpretation of test results.

F. Limits on Testing Authority:
   1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency or laboratory may not approve or accept any portion of the Work.
   3. Agency or laboratory may not assume duties of Contractor.
   4. Agency or laboratory has no authority to stop the Work.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

E. Contact Utility Protection Services [Call 811] a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
   1. Contact private utility locating services as required by the conditions. Locate all public and private utilities that may be impacted by the work.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

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SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities

B. Construction Facilities

C. Temporary Controls

D. Removal of utilities, facilities, and controls

1.2 TEMPORARY ELECTRICITY

A. Provide portable generators / power as required for the work. Pay for the cost of generators and power consumed.

1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide temporary lighting for construction operations as required by conditions and where existing lighting has been removed to facilitate work.

1.4 TEMPORARY HEATING / COOLING / VENTILATION

A. Not Applicable

1.5 TEMPORARY WATER SERVICE

A. Connect to existing water source for construction operations. Owner will pay for cost of water used.

B. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.6 TEMPORARY PROTECTION OF FIRE SPRINKLER / FIRE ALARM SYSTEMS

A. Not Applicable

1.7 TEMPORARY SANITARY FACILITIES

A. Provide portable toilets for workers. Maintain in a clean and sanitary condition. Provide from damage and / or vandalism.

B. Provide potable drinking water for workers.

1.8 TEMPORARY BARRICADES

A. Erect temporary barricades as applicable to the work to maintain security, dust control, protect occupants, etc.

B. Provide additional barricades, barriers, or protection necessary to protect work areas at traffic lanes, parking lots, etc.

C. Provide all applicable signage to limit non-construction personnel from entering the construction area.

D. Provide temporary emergency egress and exit signage as required by conditions and where existing has been temporarily removed to facilitate work.

1.9 STAGING AREA / MATERIAL STORAGE

A. Coordinate with Owner on acceptable location of project staging and material storage area.

B. Do not anticipate any space for storage of materials in the building / work areas or adjacent building areas.

C. Provide secured, portable storage containers for temporary / construction storage as required by the Contractor.
   1. Do not anticipate any space for storage of materials in the building / work areas or adjacent building areas.
   2. Coordinate location of storage containers with Owner.
   3. Protect / restore site as applicable to the conditions to original conditions.

D. Owner will make reasonable effort to provide suitable space on the site for the Contractor to set up operations. Moving from this space may be necessary when instructed by the Owner and shall be accomplished without charge to the Owner. Cooperate with Owner to minimize conflict from Owner's operations.

1.10 FIELD OFFICE

A. Provide securable on-site space for storage as required by the Contractor. Coordinate with Owner for approved location of such storage space.

B. Provide field office for construction operations as deemed necessary by Contractor. Pay for field offices and related expenses.

1.11 VEHICULAR ACCESS

A. Utilize existing street parking / driveways / parking areas for construction activities. Do not block or prohibit vehicular access to adjacent buildings / parking areas. Do not allow driving/parking in turf areas.

B. Provide unimpeded access for emergency vehicles. Maintain 20 feet wide driveways with turning space between and around combustible materials.

C. Provide and maintain access to fire hydrants and control valves free of obstructions.

1.12 CONSTRUCTION ACCESS DRIVE

A. Refer to Civil Engineering Drawings for requirements.

1.13 PARKING

A. Park Contractor vehicles in areas designated by the Owner.

B. Use of designated existing on-site driveways, parking areas, and / or street parking used for construction traffic is permitted. Tracked vehicles not allowed on paved areas.
   1. Do not block access to existing parking lots, driveways, etc. with construction equipment, material laydown, or storage areas.

C. Do not allow heavy vehicles or construction equipment in parking areas.

D. Maintenance:
   1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

E. Removal, Repair:
   1. Repair existing and permanent facilities damaged by use, to original or specified condition.

1.14 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition to the satisfaction of the Owner. Clean up shall occur on a DAILY basis.
   1. Failure to provide routine and daily cleanup may result in a back charge from the Owner to accomplish this work.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site daily and dispose off-site. Sort and recycle as applicable.

E. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work. Keep all work areas and project sites neat and free of trash and clutter at all times. Project site consists of occupied apartment units. Do not leave trash around the project site. Take all considerations necessary for safety.

1.15 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections. Restore any damaged work to new condition.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Protect finished pavement, concrete, stairs, finish flooring, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

D. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from the material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.

E. Prohibit traffic from landscaped areas.

1.16 FIRE PREVENTION FACILITIES

A. Prohibit smoking within building or on site under construction. **NO SMOKING IS PERMITTED ON SCHOOL PROPERTY [INTERIOR OR EXTERIOR]. NO EXCEPTIONS.**
   1. Contractor / Crew found to be smoking will be subject to a $500 fine per occurrence. Any habitual offenders will be dismissed from the project.

B. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

C. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
   1. Provide one fire extinguisher at each building under construction.
   2. Provide minimum one fire extinguisher in storage shed.
   3. Supplement as necessary per the local fire department requirements for construction operations.

1.17 BARRIERS

A. Provide barriers [construction fencing] to prevent unauthorized entry to construction areas.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

C. Protect Work existing premises from theft, vandalism, and unauthorized entry.

1.18 SECURITY

A. Security Program:
   1. Protect Work and existing premises from theft, vandalism, and unauthorized entry.
   2. Maintain program throughout construction period until Owner occupancy

B. Entry Control:
   1. Restrict entrance of persons into Project site.
   2. Allow entrance only to authorized persons with proper identification.
   3. Maintain log of workers and visitors, make available to Owner on request.

1.19 DAILY JOB LOGS

A. Maintain a daily job log that indicates the personnel on-site and activities performed (including all sub-contractors)

B. Indicate any safety concerns and incidents.

C. Indicate weather conditions.

D. Indicate any visitors or other personnel visiting the project site.

E. Job log shall be accessible to Owner and Architect upon request.

1.20 DUST CONTROL

A. Execute work by methods to minimize raising dust from Construction operations.

B. Provide positive means to prevent air-borne dust from dispensing into atmosphere and to other areas of the project as applicable.

C. Provide temporary visqueen dust control measures to minimize the spread of dust and debris. Provide drop cloths, protective coverings as necessary.

D. Provide protection of existing HVAC / distribution systems.

1.21 POLLUTION AND ENVIRONMENTAL CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Provide dust control, erosion and sediment control, etc. to allow for proper execution of the Work.

C. Provide protective coverings, etc. as necessary to protect work.

1.22 EROSION AND SEDIMENT CONTROL

A. Refer to Civil Engineering Drawings for SWPPP requirements.

1.23 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove existing utilities, connections, finishes, etc. as applicable to the work. Remove back to the nearest termination, junction box, etc. as applicable to the work. Coordinate with requirements on the drawings.

B. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Product requirements.

B. Product options and substitution procedures.

C. Equipment electrical characteristics and components.

1.2 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
   1. All products used on this project shall be new, unless otherwise noted on the drawings or as specified herein as salvaged or reused.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of same manufacturer for components being replaced.

D. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

E. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

F. Furnish interchangeable components from same manufacturer for components being replaced.

G. **Order Products in the first 30 days of the contract. Provide documentation of orders upon request.**

H. **It shall be solely the Contractor's responsibility to order products to allow timely delivery for installation. The failure to order materials early in the project shall not be a reason for a contract time extension or additional costs related to expedited shipping and/or delivery. Nor shall this be a reason for a product substitution.**

1.3 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.4 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. Coordinate material delivery to minimize Owner involvement.

1.5 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.
   1. Remove any damaged materials from the site.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Secure all products to prevent blow off / blow over during weather events, wind, etc.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
   1. Architect / Owner is the decision maker if the proposed “approved equal” is in fact equal and approved. Any decision rendered is final.
   2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to “approved equal” and includes within their bid without a formal approval is doing so at their own risk.

1.7 PRODUCT SUBSTITUTION PROCEDURES – REFER TO SECTION 01 25 00

PART 2 PRODUCTS

2.1 EXTRA MATERIALS

A. Provide attic stock of finish materials as applicable to the work and as requested by Owner.

B. Coordinate turnover of extra materials to Owner, assist in placing materials in a location suitable to the Owner.

2.2 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to Owner and place in location as directed; obtain receipt prior to final payment. Items shall be boxed and labeled with contents.

2.3 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Include lugs for terminal box.

B. Cord and Plug: Furnish minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturer's tolerances.

C. Adjust products to appropriate conditions. Position before securing products in place.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 73 00 - EXECUTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Construction Safety / Safety Program

B. Construction Layout

C. General Installation of Products

D. Starting of Systems

E. Demonstration and Training

F. Removals and Cleanup

G. Protection of Installed Construction

1.2 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this project in material, design, and extent.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturers written recommendations and instructions for installation of products and equipment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. **Beginning new Work means acceptance of existing/job-site conditions.**

B. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

C. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water service piping.
2. Verify the location of underground electrical services, natural gas piping and other utilities.
3. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

D. Contact OUPS a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
   1. Contact private utility locating services as required by the conditions. It is the Contractor's responsibility to locate all public and private utilities that may be impacted by the work.

E. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

F. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Architect / Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a RFI request to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

E. Clean substrate surfaces prior to applying next material or substance.

F. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.3 FIELD VERIFICATION

A. Prior to ordering materials, Contractor shall verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that the new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

3.4 CONSTRUCTION SAFETY / SAFETY PROGRAM

A. Develop, implement, and maintain a written safety program for all operations/ work performed on this project. Keep these documents at the job site and make available to the Architect / Owner upon request.

B. Assume all responsibility for project safety, ways, and means and methods of constructing the project. Engage safety consultant as may be necessary for the execution of the work.

C. In addition, the Owner may require special safety requirements to be performed by the Contractor, these requirements will be provided prior to commencement of work.

3.5 JOB SUPERINTENDENT/EMPLOYEES

A. Each prime contractor shall have a qualified foreman on the project at all times when work is being accomplished.

B. Refrain from fraternization with building occupants other than specifically designated Owner's representatives.

C. Furnish the Owner with a list of personnel with phone numbers that will be working on the project and emergency contacts names and numbers that has the authority to handle emergencies on a 24 hour/seven days a week.

3.6 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect / Owner promptly.
   1. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.
   2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
   1. Establish permanent benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
   2. Verify setbacks and easements.
   3. Establish limits on use of Project Site.
   4. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
   5. Inform installers of lines and levels to which they must comply.
   6. Check the location, level and plumb, of every major element as the Work progresses.
   7. Notify Architect / Owner when deviations from required lines and levels exceed allowable tolerances.
   8. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

3.7 INSTALLATION, GENERAL

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
   4. Maintain minimum headroom clearance, coordinate with Architect.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Contract Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Coordinate with Architect as applicable.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
   4. Electrical wiring and associated metallic conduit shall not be embedded within roof assemblies or placed directly below roof decks. Electrical wiring or metallic conduit located near roof assemblies shall be positioned and supported at least 10 inches away from the bottom side of the metal roof deck or other substrate to which a roof system has been or will be applied.
   5. Suspension wires, straps, chains, and metal framing such as those used to support the following shall not be attached to or through steel roof decks.
      a. Bulkheads.
      b. Suspended ceilings.
      c. Fire-suppression systems.
      d. Ductwork.
      e. Lighting.
      f. Similar items.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

3.8 PROTECTION

A. Accomplish all work in accordance with the provision of Federal, State American Standard Safety Code for Building Construction and OHSA safety requirements.
   1. Provide all aspects of project safety including protective railings and guards, tie-offs, fall protection, and other safety measures as required by OSHA, even if not specified. Fall protection is required. Architect is not a safety consultant and as such does not direct the means and methods of compliance with safety regulations.

B. Protect and maintain all building entrances, interior contents, building exterior and grounds.
   1. Return all surfaces to their original condition after all work is complete.

C. Replace / Repair any damages [including interior or exterior equipment / finishes] at no expense to the Owner in the event of damages of any kind caused by improper protection.

D. Comply with all regulations of the Local Fire Department and the Owner's requirement regarding storage and handling of flammable materials, etc. Comply with the safety provisions of the National Fire Code pertaining to such hot work. Contractor is responsible for all damage or fines resulting from failure to comply.

3.9 STARTING OF SYSTEMS

A. Coordinate schedule for startup of various equipment and systems.

B. Notify Architect / Owner seven [7] days prior to startup of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

G. Adjust operating components for proper operation to ensure smooth and unhindered operation in accordance with manufacturer requirements.

H. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.10 TESTING, ADJUSTING, AND BALANCING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 DEMONSTRATION AND TRAINING

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
   1. Prepare and insert additional data into the operations and maintenance manuals when the need for additional data becomes apparent during instruction.

3.12 REMOVALS AND CLEANUP

A. Remove and demolish of items that are required for proper completion of the work as applicable in each section. All debris resulting from the work not designated for reuse becomes the property of the Contractor unless stated otherwise.

B. Keep all work areas and project sites neat and free of trash and clutter at all times.

C. Maintain the work areas, including all subcontractor's work, clean of all debris to the satisfaction of the Owner at the completion of each work day [daily cleanup].

D. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work.
   1. No Debris, materials, etc. may be left unprotected on the grounds.
   2. All exterior staging / dumpster areas must be fenced / protected.

3.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove existing utilities, connections, finishes, etc. as applicable to the work. Remove back to the nearest termination, junction box, etc. as applicable to the work. Coordinate with requirements on the drawings.

B. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion review.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

3.14 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Contract Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished pavement, concrete, floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.

G. Prohibit traffic from landscaped areas.

3.15 CORRECTION OF WORK

A. Repair or remove and replace damaged, defective, or nonconforming work. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with watching materials, and properly adjusting operating equipment.

B. Repair work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Punchlist Requirements

B. Substantial Completion

C. Final Contract Completion

D. Project Record Documents

E. Warranties

F. Final Cleaning

G. Repair of Work

1.2 PUNCHLIST REQUIREMENTS

A. Review and inspect all Work prior to notifying Architect / Owner for a Punchlist inspection of the work.
   1. Provide seven [7] day notice prior to work being complete to establish desired inspection date. Architect / Owner will either proceed with the inspection or notify Contractor of unfulfilled requirements.
   2. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for punch list inspection.

B. Architect / Owner will inspect the completed project and notify the Contractor of any deficiencies. Deficiencies will form 'punch list' for final acceptance.

C. If work is clearly not complete, the Punchlist will be suspended until such time that it is evident that the Contractor has completed and reviewed / inspected their own work.
   1. Architect anticipates [1] punchlist inspection and [1] back-punch / final inspection as part of services to the Owner.
   2. Failures by the Contractor to complete the work, complete punchlists, etc. may result in a backcharge to the Contractor for the additional time to closeout the project.

D. Review and provide the noted repairs and corrective work necessary at each of the Punchlist inspections to allow project close out.
   1. Back-punch walk through may result in additional punchlist items which need to be addressed by the Contractor.

E. Provide / allow adequate time in the construction schedule to accomplish punchout work within the overall contract period indicated within the bid documents.

F. The failure to identify any punchlist item during a walk through / inspection does not release the Contractor from contractual responsibility to address any item during the warranty period.

1.3 SUBSTANTIAL COMPLETION

A. A Certificate of Substantial Completion [AIA Form G704] will be issued upon completion of all the work. Certificate of Substantial Completion will set forth the date of warranty commencement, work yet to be completed, timeline for completion of that incomplete work, and value of that incomplete work.

1.4 FINAL CONTRACT COMPLETION

A. Provide the following items to the Owner prior to acceptance and final payment
   1. Evidence that any open claims or disputes are resolved.

2. Notarized affidavit of waiver of liens [contractor of record], sub-contractors and material suppliers
3. Final Permit approval / inspection / Certificate of Occupancy from authorities having jurisdiction
4. Final Application for Payment.
   a. Submit a final Application for Payment according to Section 01 29 00, Payment Procedures.
5. Documented evidence of completing 'punch list' as applicable.
6. Manufacturer's original warranties, including contractor maintenance agreements and warranties as applicable.
7. O+M Manuals
8. Manufacturer's maintenance and repair instructions.
9. As-Built / Record Drawings.
10. Final cleaning.
11. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

1.5 PHOTOGRAPHIC DOCUMENTATION

A. When requested by the Owner, photos of the completed punch list along with any supporting documentation can be submitted, in lieu of a final walkthrough.

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Construction Bulletins / Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction as follows:
   1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
   2. Include locations of concealed elements of the Work.
   3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
   4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
   5. Identify and locate existing buried or concealed items encountered during Project.
   6. Measured depths of foundations in relation to finish first floor datum.
   7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

8. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
9. Field changes of dimension and detail.
10. Details not on original Drawings.

G. Submit documents to Architect / Owner upon completion of Work.

1.7 WARRANTIES AND GUARANTEES

A. Refer to Owner Contract Requirements / Terms and Conditions for Additional information and requirements.

B. General: The warranty and guarantee provisions of the General Conditions apply to all work of the contract, including but not limited to the following specific categories related to individual units of work specified in various sections of these specifications:
1. Special Project Warranty (Guarantee): A warranty specifically written and signed by the Contractor for a defined portion of the work, and, where required, countersigned by sub-contractor, installer, manufacturer, or other entity engaged by the Contractor.
2. Specified Product Warranty: A warranty which is required by the contract documents, to be provided for a manufactured product incorporated in the Work, regardless of whether manufacturer has published a similar warranty without regard for specific incorporation into the work, or has written and executed a special project warranty as a direct result of contract document requirements.
3. Coincidental Product Warranty: A warranty which is not specifically required by the Contract Documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that the manufacturer of the product has published a warranty in connection with purchases and users of the product without regard for specific applications except as otherwise limited by terms of the warranty.

C. All work undertaken as part of the project shall be warranted for a period of not less than [1] year. Individual sections / products may have specific additional warranty requirements.

D. Provide notarized copies of warranty documents to the Owner.
1. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.

E. Original warranties are required to be provided to the Owner prior to final payment.

PART 2 PRODUCTS

Not Required

PART 3 EXECUTION

3.1 FINAL CLEANING AND SITE REPAIR

A. Provide final cleaning of all work areas:
1. Execute final cleaning prior to final inspection.
2. Clean Project site, yard, and grounds in areas disturbed by Construction activities.
3. Sweep paved areas broom clean. Remove all spills, stains, and foreign deposits.
4. Rake grounds that are neither planted or paved to a smooth, even textured surface.
5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove debris and surface dust from roofs, plenums, values, attics, and similar spaces.
7. Sweep concrete floors broom clean in non-occupied spaces.
8. Vacuum carpet and soft surfaces to remove debris. Shampoo if conditions warrant.

9. Clean transparent materials including glass in doors and windows. Remove glazing compounds.
10. Remove all labels which are not permanent.
11. Clean plumbing fixtures to sanitary condition, free of all stains.
12. Replace air filters.
13. Clean ductwork if utilized during construction without proper protection.
14. Clean light fixtures, globes, reflectors.
15. Clean interiors of all cabinetry.
16. Remove waste and surplus materials, rubbish, and construction facilities from site.

B. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Contract Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01 78 00 – OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Operation and Maintenance Manuals.

1.2 OPERATION AND MAINTENANCE MANUALS

A. Organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system.

B. Binder cover: printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project. Label on the front and spine of the binder.

C. Title Page: Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name and contact information for Contractor.
   6. Name and contact information for all Sub-Contractors.
   7. Name and contact information for all Major Suppliers.
   8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.

D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
   1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

E. Manual Organization:
   1. Organize into sets of manageable size. Arrange contents by CSI division. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
   2. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.

F. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents.

G. Submit O+M manuals prior to Contract Completion.
   1. Bind one [1] hard copy in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
   2. Create [2] digital copies in PDF format in a format and organization to match the hard copy.

H. Content:
   1. Title Page
   2. Table of Contents
   3. Permit and Inspection Information
   4. Project submittals, organized by CSI division
   5. Operation and maintenance instructions, arranged by CSI division and system.
      a. Building Products, Equipment, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.

b. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
c. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
d. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
e. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; service schedule, disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
f. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
g. Spare Parts List and Source Information.
h. Maintenance Service Contracts.

6. Project documents and certificates.
   a. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers.
7. Colors / finishes / samples
8. Other documentation required.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Formwork.
   2. Reinforcement and Accessories.
   3. Cast-in place concrete.
   4. Finishing and curing.

1.2 SYSTEM DESCRIPTION

A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 301 to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings or required by proposed work.

B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96/E96M, water method.

1.3 SUBMITTALS

A. Design Data: Submit mix designs, admixtures, reinforcement, and anchors.

1.4 QUALITY ASSURANCE

A. Construct and erect concrete formwork, reinforcing, and cast-in-place concrete in accordance with ACI 301.

PART 2 PRODUCTS

2.1 FORM MATERIALS AND ACCESSORIES

A. Form Materials: At discretion of Contractor.

B. Form Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

C. Slab Edge Joint Filler: ASTM D1751, Premolded asphaltic board, 1/2 inch thick. As applicable to conditions.

2.2 REINFORCEMENT MATERIALS AND ACCESSORIES

A. Reinforcing Steel: ASTM A615, Grade 60 [60 ksi yield], deformed bars to suit condition and application, uncoated finish.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 1064; plain, flat sheets; unfinished.

C. Joint Dowel Bars: ASTM A615, Grade 60, plain-steel bars, cut bars to length with ends square and free of burrs.

D. Bar Supports; Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place.
   1. Manufactured from steel wire, plastic, or precast concrete per CRSI's "Manual of Standard Practice", of greater strength than concrete.

E. Fabricate concrete reinforcement in accordance with ACI 301.

2.3 VAPOR BARRIER AND ACCESSORIES

A. Vapor Retarder: ASTM E 1745, Class A; clear polyethylene film;

1. Thickness: 10 mil thick
2. Permeance Rating: ASTM E 96, 0.01 Perms or less

B. Seam / Transition Tape: Tape with pressure sensitive or double sided adhesive. Minimum width of 4 inches. Provide and install / detail as recommended by manufacturer.

2.4 GRANULAR / AGGREGATE BASE

A. Crushed Stone / gravel: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; ODOT Item No. 304, Aggregate Base; with 100 percent passing a 2-inch sieve and 90 to 33 percent passing a No. 30 sieve.

B. Exterior Slabs:
1. Per Civil Drawings.

2.5 CONCRETE MATERIALS

General: Source Limitations: Obtain each type of class or cementitious material of same brand from same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

A. Cement: ASTM C 150, Normal-Type I Portland type.

B. Normal-Weight Aggregates: ASTM C33, Class 3M coarse aggregate or better.
1. Fine Aggregates: clean, sharp, natural sand free from loan, clay lumps, or other deleterious substances.
2. Coarse Aggregates: Clean, uncoated, processed aggregate containing no clay, mud, load, or foreign matter as follows: Crushed stone, Washed gravel [either natural or crushed] [no pit run gravel is permitted]
3. Coarse Aggregates in Exterior Concrete: crushed limestone, ASTPM C33, Class 4S or better.
4. Aggregate Size: not larger than 1/5 of the narrowest dimension between sides of forms, 1/3 of the depth of the slab, nor 3/4 of the minimum clear spacing between individual reinforcing bars or bundles of bars.

C. Lightweight Concrete Aggregate: ASTM C330

D. Water: ASTM C 1602, Clean and not detrimental to concrete.

2.6 CONCRETE MIX

A. Ready-Mixed Concrete, Measure, batch, mix, and deliver concrete in accordance with ASTM C94, Option A, and ASTM C 1116 [all concrete to be transit mixed, furnish batch ticket information upon request]

B. TRENCH FOOTINGS, FOOTINGS / INTERIOR FOUNDATIONS:
1. Strength = 3,500 PSI [28 day]
2. Max W/C Ratio = 0.55
3. Slump Limit: not less than 1" and not more than 3" at point of placement

C. FOUNDATION AND RETAINING WALLS EXPOSED TO WEATHER:
1. Strength = 4,500 PSI [28 day]
2. Max W/C Ratio = 0.45
3. Slump Limit: not less than 1" and not more than 3" at point of placement
4. Air Entrainment = 5.0% +/- 1.5% at point of delivery

D. INTERIOR FORMED CONCRETE EXPOSED TO VIEW
1. Strength = 4,000 PSI [28 day]
2. Max W/C Ratio = 0.45

E. EXPOSED INTERIOR CONCRETE SLAB ON GRADE [AND CARPETED FLOOR SLABS]

1. Strength = 4,000 PSI [28 day]
2. Max W/C Ratio = 0.45
3. Slump Limit: 4" plus or minus 1", before adding water reducing or plasticizing admixtures, max. slump of 6". Do not use high range water reducers.
4. Air Entrainment = Do not allow air content of troweled finished to exceed 3%

F. INTERIOR CONCRETE SLAB ON GRADE TO RECEIVE THIN-SET FLOORING, RESILIENT, OR OTHER FLOORING TYPES:
1. Strength = 4,000 PSI [28 day]
2. Max W/C Ratio = 0.45
3. Use mid-range water reducer.
4. Slump Limit: 4" plus or minus 1", before adding water reducing or plasticizing admixtures, max. slump of 6". Do not use high range water reducers.
5. Air Entrainment = Do not allow air content of troweled finished to exceed 3%

G. EXTERIOR WALKS, STOOPS, APRONS, CURBS, EXTERIOR CONCRETE EXPOSED TO VIEW / WEATHER, INCLUDING LIGHT POLE BASES, EQUIPMENT PADS:
1. Strength = 4,500 PSI [28 day]
2. Max W/C Ratio = 0.45
3. Use mid-range water reducer.
4. Air Entrainment = 5.0% +/- 1.5% at point of delivery

H. EXTERIOR PAVING
1. Strength = 4,500 PSI [28 day]
2. Max W/C Ratio = 0.40
3. Slump Limit: 5", plus or minus 1" at point of placement
4. Air Entrainment = 6.0% +/- 1.5% at point of delivery

I. FLOWABLE FILL – TYPE 1 – UTILITY TRENCH BACKFILL
1. Strength = 50-100 PSI [28 day]
2. Unconfined compression strength per ASTM D 4832

J. FLOWABLE FILL – TYPE 2 – UNDER FOUNDATIONS
1. Strength = 85 PSI [28 day]
2. Unconfined compression strength per ASTM D 4832

K. LEAN CONCRETE FILL UNDER FOOTINGS / FOUNDATIONS
1. Strength = 1,500 PSI [28 day]
2. Max W/C Ratio = 0.55 for non-air entrained mix.

2.7 ADMIXTURES

A. Air-Entraining Admixture: ASTM C260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Admixtures containing intentionally-added chlorides shall conform to limit consistent with ACI 318 and ACI 301.
1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B or D.
3. Accelerating Admixture: ASTM C 494, Type C or E.
4. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
5. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
6. High-Range, Water-Reducing Admixture: ASTM C 494, Type F or G.
7. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
8. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.
9. Workability-Retaining Admixture: ASTM C494, Type S. Shall retain concrete workability without affecting time of setting or early-age strength development.

10. ASR-Inhibiting Admixtures: ASTM C494, Type S. Shall contain a nominal lithium nitrate content of 30 percent.
11. Other Specific Performance Admixtures: ASTM C494, Type S.

2.8 FIBER MESH REINFORCEMENT

A. Synthetic Fiber: ASTM C 1116, Type III, 1/2 to 1-1/2 inches long, fibrillated micro-polypropylene fibers

2.9 CURING MATERIALS

A. Evaporation Reducer: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Curing Paper: Eight feet wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.

E. Water: Potable or complying ASTM C1602 that does not cause staining of the surface.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound (CSC): ASTM C 1315, Type 1, Class A.
1. Use only where slabs receive no other type of coating or finish.

2.10 SEALERS

A. Penetrating Anti-Spalling Sealer (Exterior ramps, steps, and stoops): siloxane-based compound or silane modified siloxane emulsion formulated to reduce chloride ion absorption/intrusion by 80 percent when tested in accordance with NCHRP #244, Test Method Series II or IV tests. In addition, sealer-treated concrete shall exhibit no scaling when exposed to 125 cycles of freezing and thawing when tested in accordance with ASTM C 672.

B. Floor Sealer: ASTM C1315, Type I, Class A and ASTM C309, Type I, Class A and B. Acrylic water-based urethane clear sealer, non yellowing, resistant to blush, and satin finish as recommended by manufacturer for preventing staining by waterborne and oil substances.

2.11 ACCESSORIES

A. Expansion and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, ASTM D 1752, cork or self-expanding cork, or ASTM 4819, Type II, or ASTM D 1622 closed-cell compressible foam, 1/4 inch maximum thickness.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

PART 3 EXECUTION

3.1 FORMWORK ERECTION

A. Erect formwork, shoring and bracing to achieve design requirements.

B. Apply form release agent to formwork prior to placing form accessories and reinforcement.

C. Clean forms as erection proceeds, to remove foreign matter.

3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS

A. Provide formed openings where required for work to be embedded in and passing through concrete members.

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

C. Install concrete accessories straight, level, and plumb.

D. Place joint filler at perimeter of floor slab, penetrations, and isolation joints.

3.3 REINFORCEMENT PLACEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing and supplying reinforcement.
   1. Do not cut or puncture vapor barrier. Repair damage and reseal vapor barrier before placing concrete.
   2. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

B. Accurately position, support, and secure reinforcement against displacement.
   1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
   2. Do not tack weld crossing reinforcing bars.

C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.

D. Provide concrete coverage in accordance with ACI 318.

E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

F. Splices: Lap splices as indicated on Drawings.

G. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging.
   1. Support welded-wire reinforcement in accordance with CRSI “Manual of Standard Practice”.
   2. “Manually” pulling or lifting reinforcement into place during placement of concrete is not acceptable method of placing reinforcement.
   3. Lap edges and ends of adjoining sheets at least one mesh spacing plus 2 inches for plain wire and 8 inches for deformed wire.
   4. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
   5. Lace overlaps with wire.

H. Provide sufficient numbers of supports and of strength to support reinforcement in correct position. Do not place reinforcing bars more than 2 inches beyond last leg of continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

I. Reinforcing steel installed in continuous footings shall run continuous. This shall include specially shaped components with proper lap where corner reinforcing and step footings occur.

J. Provide additional reinforcing around required openings in footings and slabs having a one foot least dimension.

K. Support welded wire fabric in slabs-on-ground with precast concrete bricks at 2 feet spacing in both directions.

L. Provide continuous chairs or bolsters to support welded wire fabric in elevated slabs at each line of support for steel deck (e.g., at centerline of supporting joists or beams) and as required to support reinforcing steel in correct position.

M. It is not acceptable to lift mesh into place during concrete placements

3.4 VAPOR BARRIER INSTALLATION

A. Vapor Barriers: Place, protect, and repair vapor barriers according to ASTM E 1643 and manufacturer's written instructions.
   1. Place vapor barrier directly below slab and above drainage fill.
      a. Face laps away from expected direction of concrete pour whenever possible.
   2. Extend vapor barrier over footings and seal to foundation wall, grade beam, or slab at an elevation consistent with top of slab or terminate at impediments such as waterstops or dowels. Seal around penetrations such as utilities and columns in order to create a monolithic membrane between surface of slab and moisture sources below slab as well as at slab perimeter. Seal top edge with continuous bead of high-grade mildew resistant silicone sealant or manufacturer's tape.
   3. Lap joints minimum 6 inches, or as instructed by manufacturer, and seal laps in accordance with manufacturer's recommendations in a manner consistent with ASTM E1643.
   4. Seal all penetrations (including pipes) with manufacturer's pipe boot or manufacturer's instructions.
   5. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged areas 6 inches and sealing all four sides with tape.

3.5 PLACING CONCRETE

A. General: Comply with ACI 301.

B. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
   1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.

C. Place concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness.
   1. If a section cannot be placed continuously, provide construction joints as indicated.
   2. Place concrete to avoid segregation.
   3. Place concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
   4. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
      a. Do not use vibrators to transport concrete inside forms.
      b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
      c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
      d. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
   5. Concrete shall be completely placed within 1-1/2 hours after entering conveying drum.
   6. Pumped Concrete: Comply with ACI 304R.

D. Place and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   1. Do not place concrete floors and slabs in a checkerboard sequence.
   2. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   3. Maintain reinforcement in position on chairs during concrete placement.
   4. Screed slab surfaces with a straightedge and strike off to correct elevations.
   5. Level concrete, cut high areas, and fill low areas.
   6. Slope surfaces uniformly to drains where required.
   7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on surface. Do not further disturb slab surfaces before starting finishing operations.
   8. Do not further disturb slab surfaces before starting finishing operations.

E. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.

F. Place concrete continuously between predetermined expansion, control and construction joints. Do not break or interrupt successive pours creating cold joints.

G. Separate slabs-on-grade from vertical surfaces with 1/2 inch thick joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.

H. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrink grout.

3.6 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Remove formwork progressively and in accordance with code requirements.

3.7 FINISHING FORMED SURFACES

A. As-Cast Surface Finishes:
   1. Rough-Formed Finish: ACI 301 surface finish as-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
      a. Apply to concrete surfaces not exposed to public view.
   2. Smooth-Formed Finish: ACI 301 surface finish as-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
      a. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, and to be covered with a coating or covering material applied directly to concrete.

B. Rubbed Finish: Apply following to smooth-formed finished as-cast concrete where indicated:
   1. Smooth-Rubbed Finish:
      a. Not later than one day after form removal.
      b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
      c. If sufficient cement paste cannot be drawn from concrete by rubbing process, use a grout made from same cementitious materials used in in-place concrete.
   2. Grout-Cleaned Finish:
      a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
      b. Do not clean concrete surfaces as work progresses. Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes.

c. Mix one part Portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces.
d. Wet concrete surfaces.
e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 FLOOR FINISHING

A. General Information (Slabs-on-Grade): Requirements indicated are based upon latest FF/FL method.
1. Comply with ACI 302.1R recommendations for screeding, restraightening and finishing operations for concrete surfaces. Do not wet concrete surfaces.
2. Finish surfaces to the following tolerances, in accordance with ASTM E 1155.

B. Float Finish:
1. Apply float finish to monolithic slab surfaces that are to receive a trowel finish.

C. Trowel Finish:
1. After applying float finish, apply first troweling and consolidate concrete by hard or power driven trowel.
2. Trowel Finish 1: Carpeted Floors, unless otherwise noted.
a. Apply trowel finish to monolithic slab surfaces that are to receive carpet and noncritical floors where slabs remain exposed, such as mechanical rooms, metal stair pan fill, and topping over precast deck, unless otherwise noted.
3. Trowel Finish 2: Floors with improved flatness/levelness requirements.
a. Apply trowel finish to monolithic slab surfaces that are to receive thin-set flooring, resilient flooring, linoleum flooring, fluid-applied flooring, resinous flooring and other flooring types, unless otherwise indicated.
4. Exposed Surfaces: Use steel-reinforced plastic power trowel blades (in lieu of steel) to control dark burnish marks on plain concrete or surface to receive: stain, dye, shake-on, integral pigments, polished, or clear sealed.

D. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete platforms, steps and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom, perpendicular to main traffic route.

E. Maintain surface flatness, with maximum variation of 1/8 inch in 10 ft; Conform to ACI 117.

F. Control joints:
1. Locate at maximum of 12'-0" o.c. each way.
2. Sawcut joints permitted only at concealed concrete areas.
3. Trowel and re-trace joints at all exposed concrete areas.

3.9 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
1. Protect concrete footings from freezing for a minimum of 7 days.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete for not less than 7 days.

C. Apply sealer on floor surfaces not receiving finish floor system.

3.10 ERECTION TOLERANCES

A. Install reinforcement within tolerances required by ACI 301.

3.11 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with ACI 301 at the request of Architect.

B. Field Testing:
   1. Measure slump and temperature for each compressive strength concrete sample.
   2. Measure air content in air entrained concrete for each compressive strength concrete sample.

C. Cylinder Compressive Strength Testing:
   1. Test Method: ASTM C39.
   2. Test Acceptance: In accordance with ACI 301.
   3. Test two cylinders at 28 days.
   4. Dispose remaining cylinders when testing is not required.

3.12 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required lines, details and elevations, as directed by Architect.

END OF SECTION

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SECTION 04 20 00 - UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes concrete masonry units, reinforcement, anchorage, and accessories.

1.2 SUBMITTALS

A. Product Data: For each type of CMU component, mortar / mix design, grout, reinforcement, and accessories.

1.3 PERFORMANCE REQUIREMENTS

A. Concrete Masonry Compressive Strength (f'm): 2,000 psi; determined by unit strength method.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Assume responsibility for acceptance of masonry units delivered to Project site being in compliance with specified ASTM requirements for chippage and dimensional tolerances.
   1. Inspect decorative units upon delivery to ensure color match with required materials and accepted mock-up panel.

B. Store masonry units on elevated platforms in a dry location to prevent contamination by mud, dust or materials likely to cause staining or other defects. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
   1. Cover masonry units at all times.

C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
   1. Deliver cementitious and other packaged materials in unopened containers, plainly marked and labeled with manufacturers' names and brands.
   2. Handle cementitious materials in a manner that will prevent the inclusion of foreign materials and damage by water or dampness.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Store sand on tarps to keep ground water from wicking into sand.

F. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 FIELD CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Temporary measures include application of self-adhered membrane or flashing with long UV exposure. Cover partially completed masonry when construction is not in progress. Continue to cover walls until tie-in to roof is complete and top of wall is protected from water penetration.

B. This structure is designed to be self-supporting and stable after the building is fully completed. Protect masonry walls against wind damage by bracing as required until support of walls is integral with the completed building structure. This includes the addition of whatever temporary

bracing, guys, or tie-downs that might be necessary. Safety: It is solely the Contractor's responsibility to follow all applicable safety codes and regulations governing this Work.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Concrete Masonry Units: ASTM C 90.
   1. Size and Shape: Nominal modular sizes as indicated on Drawings.
      a. Furnish special units for 90 degree corners, bond beams, lintels, jambs, bullnosed corners.
   2. Weight Classification: Normal Weight.
   3. Exposed Faces: Refer to Drawings – smooth face and split face.
   4. Color: Provide [2] Colors as indicated on Drawings.

2.2 MASONRY LINTELS

A. Prefabricated or built-in-place masonry lintels made from specially formed "U" shaped lintel units with reinforcing bars placed as indicated and filled with coarse grout. Open bottom, bond-beam type units are not acceptable for use as reinforced lintels. Cure prefabricated lintels before handling and installing. Temporarily support built-in-place lintels until cured.
   1. Prefabricated lintels shall have a faux head joint pattern on their exposed faces and shall have their top side clearly marked in the factory. Prefabricated lintels are to be installed such that the faux head joint pattern aligns with that of the surrounding masonry.
   2. Knockout blocks are not acceptable.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color(s) indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: ASTM C 150, Packaged blend of Portland cement, Type I or Type III, and ASTM C 270 hydrated lime, Type S.

D. Mortar Cement: ASTM C 1329.

E. Mortar Pigments: ASTM C 979, Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes.

F. Colored Cement: Packaged blend made from Portland Cement and lime, masonry cement, or mortar cement and mortar pigments, all complying with specified requirements.

G. Aggregate for Mortar: ASTM C 144.

H. Aggregate for Grout: ASTM C 404.

1. Fine Aggregates: ASTM C 404, clean, sharp, natural sand free from loam, clay lumps, or other substances.
2. Coarse Aggregates: ASTM C 404, clean uncoated, pea gravel containing no clay, mud, load, or foreign matter. Maximum aggregate size 3/4 inch.

I. Water: ATSM C 1602.

2.4 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
   1. For masonry below grade use Type M, where indicated only.
   2. For masonry, use Type S, unless otherwise noted.
   3. For non-load bearing interior partitions, use Type N or S, unless otherwise noted.
   4. For exterior, above-grade, masonry veneer, use Type N or S, unless otherwise noted.

B. Natural [uncolored] Mortar: locations where masonry will be painted.

C. Colored Pigmented Mortar: locations of decorative masonry [non-painted]

D. Grout for Unit Masonry: ASTM C 476.

2.5 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615, Grade 60, deformed steel bars.

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells.

C. Masonry Joint Reinforcement: ASTM A 951, galvanized welded wire mesh.
   1. W1.7 x W1.7 wire mesh unless noted otherwise on Drawings, located at 16 inches on center vertically

2.6 TIES AND ANCHORS

A. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

B. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

C. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

D. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins, unless otherwise indicated.

E. Intersecting Masonry Wall Joint Reinforcing: Where interior masonry walls supported on slabs intersect masonry walls, provide hot dip galvanized 1/2 inch by 16 gauge mesh ties spanning horizontally.

2.7 ACCESSORIES

A. Compressible Filler: ASTM D 1056, Premolded filler strips, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or urethane.

B. Preformed Control-Joint Gaskets: ASTM D 2000, styrene-butadiene-rubber compound, or ASTM D 2287, PVC and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

D. Cellular Plastic Weep / Vent: One-piece, flexible extrusion, UV resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of other wythe.

E. Cavity Mortar Protection Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

F. Elastomeric Tubing Sealant Backings: ASTM D 1056, Grade 2A1, Neoprene, butyl, EPDM, or silicone tubing, non-absorbent to water and gas. Size and shape for conditions.

G. Masonry Cleaners: Manufacturer's standard strength, general purpose cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from masonry surfaces of type indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned. Do not use products containing hydrochloric (muriatic acid, hydrofluoric acid, or ammonium bifluoride).

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify field conditions are acceptable and are ready to receive Work.

3.2 PREPARATION

A. Coordinate placement of anchors supplied by other sections.

3.3 INSTALLATION

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Coursing of Concrete Masonry Units:
1. Bond: Running.
2. Coursing: One unit and one mortar joint to equal 8 inches.
3. Mortar Joints: Concave.

D. Cut mortar joints flush where ceramic wall tile or other wall covering is scheduled, cement parging is required, resilient base is scheduled.

E. Joint Reinforcement And Anchorage - Single Wythe Masonry:
1. Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first joint below top of walls.
2. Place masonry joint reinforcement in first horizontal joint above and below openings. Extend minimum 16 inches each side of opening.
3. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches oc.

F. Lintels:
1. Install loose steel, bond beams or precast concrete lintels over openings.
2. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled or indicated.
3. Maintain minimum 8 inch bearing on each side of opening.

G. Grouted Components:
1. Reinforce bond beam and pilasters as detailed.

2. Support and secure reinforcing bars from displacement.
3. Place and consolidate grout fill without displacing reinforcing.
4. At bearing locations, fill masonry cores with grout for minimum 12 inches both sides of opening.

H. Masonry Protection: Protect completed masonry and masonry not currently being worked on.

I. Control Joints:
1. Install control joints at the following maximum spacings, unless otherwise indicated on Drawings:
   a. Exterior Walls: 20 feet on center and within 24 inches on one side of each interior and exterior corner.
   b. Interior Walls: 30 feet on center.
   c. At changes in wall height.
2. Do not continue horizontal joint reinforcement through control joints.
3. Form control joint with sheet building paper bond breaker fitted to one side of hollow contour end of block unit. Fill resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
4. Install preformed control joint device in continuous lengths. Seal butt and corner joints.

J. Built-In Work:
1. As work progresses, install built-in metal door frames, window frames, anchor bolts and plates and other items to be built in the work furnished by other sections.
2. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings].

K. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
1. Install adjustable hollow metal frame anchors, locating anchors on jambs in horizontal bed courses near the top and bottom of each frame and at intermediate points not over 24 inches apart.
2. Unless otherwise noted or thermal break is required, contractor may grout jambs of hollow metal door and window frames in accordance with ANSI 250.8. Where grout is installed during masonry installation, frames shall be braced or fastened in such a way that will prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4 inch maximum slump consistency, hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.
3. Rake joints around exterior side of exterior hollow metal door frames for sealant.
4. Protect inside (concealed) faces of door frames in exterior masonry walls, using fibered asphalt emulsion coating. Apply over shop primer approximately 1/8 inch thick and allow to dry before handling.
5. Where hollow metal frames do not wrap around masonry jambs and heads, rub exposed corners of block to remove sharp, irregular edges.
6. Take particular care to embed all conduits and pipes with concrete masonry without fracturing exposed shells and to fit units around switch, receptacle and other boxes set in walls. Where electric conduits, outlets, switch boxes, and similar items occur, grind and cut units before building in services. Prepare cutouts in such a manner that units can be installed plumb and flush.
7. Install anchors, reglets, and nailers for flashing and related work built into masonry work, where indicated.

L. Where built-in items are to be embedded in cores of hollow masonry units, place a grout stop (a layer of metal lath, wire mesh, or plastic mesh) in the joint below and rod mortar or grout into core.

M. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

N. Control Joint Locations in CMU: Provide vertical control joints in reinforced CMU where noted on Drawings and in accordance with the National Concrete Masonry Association, specifically at all offsets, returns, openings, and intersections with dissimilar materials and as follows to prevent cracking:

O. Flashing: Install embedded flashing and weep vents in first course of masonry above ground level, at lintels, ledges, above doors, windows and other openings and under coping and sills, other obstructions to downward flow of water in wall. Flashing shall be installed longitudinally continuous or terminated with end dams. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities. Comply with NCMA recommendations for "drainage wall system" masonry construction.

P. Cleaning:
   1. Remove excess mortar and mortar smears as work progresses.
   2. Clean soiled surfaces with cleaning solution.

Q. Tolerances:
   1. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
   2. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

END OF SECTION

SECTION 07 90 00 - JOINT PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes sealants and joint backing.

1.2 SUBMITTALS

A. Product Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
   1. Certify volatile organic compound for each interior adhesive and sealant and related primer.
      a. All sealants must comply with Regulation 8, Rule 51 of the Bay Area Air Quality Management District.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.4 QUALITY ASSURANCE

A. Sealant shall be installed by a qualified sealant applicator for any/all joint sealant exposed to view. Owner reserves the right to request a mockup of the quality for the joint sealant installation.

PART 2 PRODUCTS

2.1 JOINT SEALERS

A. Manufacturers:
   1. Tremco [basis of design]
   2. Sika
   3. GE Silicones.
   4. Pecora Corp.
   5. DAP

B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

C. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Liquid-Applied Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.

E. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Additional Movement Capability: Where additional movement capability is specified, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C920 for uses indicated.

G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range, unless otherwise noted.

2.2 SILICONE JOINT SEALANTS:

A. **Type S-1**: Single component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use NT
   1. Tremco Spectrem 1 or Spectrem 800 or Equal

B. **Type S-2**: Single Component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, use NT
   1. Tremco Spectrem 2 or Spectrem 3 or Equal

C. **Type S-3**: Multi-Component, Nonsag, Silicone Joint Sealant: ASTM C920, Type M, Grade NS, Class 50, Use NT
   1. Tremco Spectrem 4-TS or Equal

D. **Type S-4**: Single Component, nonsag, Traffic-Grade, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use T
   1. Tremco Spectrem 800 or Equal

E. **Type S-5**: Mildew Resistant, Single Component, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT
   1. Tremco Tremsil 200 Sanitary or Equal

2.3 URETHANE JOINT SEALANTS

A. **Type U-1**: Single Component, nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25 or 35, Use NT:
   1. Tremco Dymonic or Dymonic FC or Equal

B. **Type U-2**: Single Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use T.
   1. Tremco Vulkem 116 or Equal.

C. **Type U-3**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Dymeric 240 or Dymeric 240 FC or Equal

D. **Type U-4**: Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use NT.
   1. Tremco Vulken 227 or Equal

E. **Type U-5**: Multi-Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
   1. Tremco Vulken 227 or Equal

2.4 BUTYL JOINT SEALANTS

A. **Type B-1**: Butyl Rubber based Joint Sealants: ASTM C 1311
   1. Tremco General Purpose Butyl Sealant or Equal

2.5 LATEX JOINT SEALANTS

A. **Type L-1**: Latex Joint Sealant: Acrylic latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better
   1. Tremco Tremflex 834 or Equal.

B. **Type L-2**: Paintable Mildew-Resistant Latex Joint Sealant: Acrylic Latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better.
   1. Tremco Tremflex 834 or Equal.

2.6 ACCESSORIES

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Oversized to 30 to 50 percent larger than joint width.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

E. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Non-staining type, recommended by sealant manufacturer to suit application.

F. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

G. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces and joint openings are ready to receive work.

B. Verify joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter impairing adhesion of sealant.

B. Clean and prime joints.

C. Perform preparation in accordance with ASTM C1193.

3.3 INSTALLATION

A. Perform installation in accordance with ASTM C1193.

B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

C. Install bond breaker where joint backing is not used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tool joints concave.

3.4 SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and non-traffic horizontal surfaces.
   1. Joint locations such as, but not limited to:
      a. Construction joints in cast-in-place concrete.
      b. Control joints in unit masonry.

1) Provide joint sealants slightly darker than the adjacent masonry units. Provide multiple colors as may be required for match.

c. Perimeter joints between masonry, concrete, or stone and frames of doors, windows, storefronts, louvers, and similar openings.
d. Lintels and shelf angles to masonry construction.
e. Butt joints between metal panels.
f. Control and expansion joints in ceiling/soffit and similar overhead surfaces.
g. Exterior joints between dissimilar materials where the joining of the two surfaces leaves a gap between the meeting materials or components as may be dictated by various methods of construction to make building watertight.
h. Other joints as indicated on Drawings.

2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type S-2, Type S-3**
3. Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
1. Joint locations such as, but not limited to:
a. Isolation joints in cast-in-place concrete slabs.
b. Perimeter of floor slabs or concrete curbs which abut vertical surfaces.
c. Areas around all piping systems that penetrate the slab or foundation walls below grade (utility trenches, electrical conduits, plumbing penetrations, etc.).
d. Control and expansion joints in tile flooring.
e. Other joints as indicated on Drawings.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-4**
3. Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces, subject to movement, unless otherwise noted.
1. Joint locations such as, but not limited to:
a. Control joints on exposed interior surfaces of exterior walls.
b. Interior joints where interior partitions meet exterior walls of dissimilar materials and components.
c. Other joints as indicated on Drawings.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
3. Color: As selected by Architect from manufacturer's full range of colors. Paintable Sealant, prep for painted finish.

D. Joint-Sealant Application: Interior joints in vertical surfaces subject to abuse and movement.
1. Joint locations such as, but not limited to:
a. Vertical joints, including control joints and joints between masonry and structural support members, on exposed surfaces of interior unit masonry walls and partitions.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-2**
3. Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Interior joints in vertical surfaces not subject to movement.
1. Joint locations such as, but not limited to:
a. Interior perimeter joints of exterior openings.
b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
c. Interior joints between dissimilar materials where a gap is created where materials meet, unless otherwise noted.
2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-1, Type L-2**
3. Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Mildew-resistant interior joints in non-painted vertical surfaces and horizontal nontraffic surfaces.
   1. Joint locations such as, but not limited to:
      a. Interior joints between plumbing fixtures and adjoining floors and counters.
      b. Joints between countertops and backsplashes.
      c. For interior joints in non-painted vertical and horizontal surfaces where incidental food contact may occur.
      d. Tile control and expansion joints where indicated.
      e. Other joints as indicated on Drawings.
   2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-5**
      a. For potable water storage sealant shall be certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61 – Drinking Water System Components – Health Effect.
      b. For surfaces where incidental food contact may occur sealant must comply with United States Department of Agriculture (USDA) guidelines for incidental food contact with cured sealant.
   3. Color: As selected by Architect from manufacturer's full range of colors.

G. Joint-Sealant Application: Mildew-resistant interior joints in painted vertical surfaces and horizontal non-traffic surfaces.
   1. Joint locations such as, but not limited to:
      a. Interior joints between plumbing fixtures and adjoining painted walls.
      b. Joints where countertops or backsplashes intersect painted walls.
      c. For interior joints in painted vertical and horizontal surfaces where incidental food contact may occur.
   2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-2**
   3. Color: As selected by Architect from manufacturer's full range of colors.

H. Joint-Sealant Application: Interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
   1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
   2. Color: As selected by Architect from manufacturer's full range of colors.

I. Joint-Sealant Application: Exterior joints under metal thresholds and saddles, sill plates, or as bedding sealant for sheet metal flashing and frames of metal or wood.
   1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type U-1, Type B-1**
   2. Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

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SECTION 31 10 00 - SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removing surface debris,
   2. Removing designated paving, curbs, and site development, etc.
   3. Removing topsoil and subsoil.
   4. Rough grading and site contouring.
   5. Removing trees, shrubs, and other plant life.

B. Coordinate Scope on the Civil Engineering drawings. Follow intent of the Civil Drawings, and the full extent of the requirements to provide the proposed improvements for the site and utility improvements.

1.2 SUBMITTALS

A. Product Data: Submit data for herbicide.

PART 2 PRODUCTS

2.1 SITE CLEARING

A. Herbicide: approved by authority having jurisdiction.

PART 3 EXECUTION

3.1 PREPARATION

A. Call Local Utility Line Information service not less than three working days before performing Work. Identify all public and private utilities as is applicable to the work. Provide services of private utility location services as is applicable to the work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

3.2 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.3 CLEARING

A. Clear areas required for access to site and execution of Work.

B. Remove paving, curbs, and other site improvements to be removed.

C. Remove trees and shrubs. Remove stumps, main root ball and root system.

D. Apply herbicide to remaining stumps or plant life to inhibit growth.

3.4 REMOVALS

A. Remove debris, rock, and extracted plant life from the Site.

B. Remove paving, curbs, and existing site improvements as identified.
   1. Neatly saw cut edges at right angle to surface. Replace / re-cut any failed edges for a new clean cut.

C. Remove abandoned utilities. Indicate removal termination point on as-built drawings if applicable.

D. Continuously clean up and remove waste materials from the Site. Do not allow materials to accumulate on Site.

E. Do not burn or bury materials on Site. Leave Site in clean condition.

3.5 TOPSOIL EXCAVATION

A. Excavate topsoil from **areas to be further excavated, relandscaped, or regraded** without mixing with foreign materials for use in finish grading.

B. Do not excavate wet topsoil.

C. Stockpile in area designated on Site to depth not exceeding **8** feet and protect from erosion. Stockpile material per the Civil Drawings until disposal.

D. Remove excess topsoil not intended for reuse from Site, unless directed otherwise by Owner.

3.6 ROUGH GRADING

A. Identify required lines, levels, contours, and datum.

B. Identify known underground, above ground, and aerial utilities. Stake and flag locations.

C. Notify utility company to remove and relocate utilities as applicable.

D. Excavate topsoil and subsoil from areas to be further excavated, re-landscaped or re-graded.

E. Stockpile topsoil in area designated on site.

F. Remove excess topsoil and subsoil not being reused, from site.

3.7 CLEAN UP

A. Remove debris, rock larger than 1.5 cu ft, and extracted plant life from site.

3.8 SCHEDULE

A. Refer to Civil Drawings for extent of scope and work areas.

END OF SECTION

SECTION 31 20 00 - EARTH MOVING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes site grading, removal of topsoil and subsoil, building excavating and trenching, backfilling, and compacting.

PART 2 PRODUCTS

2.1 SOIL MATERIALS [COORDINATE WITH GEO-TECHNICAL REPORT]

A. Topsoil: Reusable excavated or Imported friable loam; free of subsoil, roots, grass, weeds, large stone, and foreign matter. ASTM D 4268, pH range of 5.5 to 7, minimum of 4 percent organic material content.
   1. Amend existing in place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Surface soil may be supplemented with imported or manufactured topsoil from off-site sources.

B. Subsoil: Excavated material, graded free of lumps larger than 6 inches, rocks larger than 2 inches, organic material, and debris. ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or a combination there of.

2.2 FILL MATERIALS [COORDINATE WITH GEO-TECHNICAL REPORT]

Contractor's Option – provide soil or aggregate samples to Geo-Technical Engineer / Special Inspector for review and approval.

A. Type A - Select Granular Material: Coarse stone: Pit run, washed natural stone; free of shale, clay, friable material, sand, debris.
   1. Grading: AASHTO M147; Grade 57.

B. Type B: Subsoil: Reused or Imported, free of rock greater than 3 inch size and free of debris or foreign materials, etc.

2.3 ACCESSORIES

A. Geotextile Fabric: See 32 90 00.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Call OUPS to mark locations of all underground utilities a minimum of 3 working days prior to starting work.

B. Identify required lines, levels, contours, and datum.

C. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

D. Maintain and protect existing utilities to remain.

E. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil bearing water runoff of airborne dust to adjacent properties.

F. Prevent surface water and ground water from entering excavations, from ponding on prepared sub-grades, and from flooding the project site and surrounding areas.

G. Verify foundation walls are braced to support surcharge forces imposed by backfilling operations.

3.2 PROTECTION OF ADJACENT WORK

A. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.

B. Grade excavation top perimeter to prevent surface water run-off into excavation or to adjacent properties.

C. Contractor shall be responsible for damage to existing utilities caused by construction operations.

3.3 TOPSOIL EXCAVATING

A. Do not excavate wet topsoil.

B. Excavate topsoil and stockpile for reuse. Remove excess topsoil not planned / required for reuse from the Site.

3.4 SUBSOIL EXCAVATING

A. Do not remove wet subsoil. Remove groundwater by pumping to keep excavations dry.

B. Excavate subsoil from areas to be further excavated, regraded, or impacted by work.

C. Excavate subsoil required for new building foundations and construction operations, and other Work.

D. Slope banks [to angle of repose or less, until shored.

E. Do not interfere with 45 degree bearing splay of foundations.

F. Correct unauthorized excavation at no cost to Owner.

G. Proof roll bearing surfaces. Fill soft spots with engineered fill and compact uniformly to 95 percent of maximum density.

H. Correct unauthorized excavation at no cost to the Owner.

I. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Architect/Engineer.

J. Stockpile subsoil in area designated on site. Remove excess subsoil not being reused from site.

3.5 FILLING

A. Fill areas to contours and elevations with unfrozen materials.

B. Place fill material in continuous layers and compact, Coordinate with Civil Drawings and Geo-Technical / Special Inspection Requirements.

C. Maintain optimum moisture content of fill materials to attain required compaction density.

D. Make grade changes gradual. Blend slope into level areas.

E. Slope grade away from pavement and buildings as indicated on Civil Drawings.

F. Repair or replace items indicated to remain damaged by excavation or filling.

3.6 TRENCHING

A. Excavate for storm sewer, sanitary sewer, water, gas, electric, and other utilities per the Civil Drawings and to meet the applicable installation standards by the local municipality.

B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.

C. Hand trim excavation and leave free of loose matter.

D. Support pipe during placement and compaction of bedding fill.

E. Backfill trenches to required contours and elevations.

F. Place and compact fill materials as for Backfilling.

3.7 BACKFILLING

A. Backfill areas to contours and elevations. Use unfrozen and unsaturated materials.

B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Place geotextile fabric over unstable subsoil.

D. Place material in continuous layers as follows:
   1. Soil Materials: Maximum 8 inches compacted depth.
   2. Fill Materials: Maximum 8 inches compacted depth.

E. Employ placement method so not to disturb or damage foundations or utilities in trenches.

F. Maintain optimum moisture content of backfill materials to attain required compaction density.

G. Backfill against supported foundation walls.

H. Slope grade away from building minimum 2 percent for a minimum distance of 10 feet, unless noted otherwise. Coordinate with Civil Drawings.

3.8 PLACING TOPSOIL

A. Place topsoil in areas where seeding, sodding, and planting is scheduled.

B. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.

C. Remove large stone, roots, grass, weeds, debris, and foreign material while spreading.

D. Lightly compact placed topsoil.

E. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.9 SCHEDULE

A. Coordinate with Civil Engineering Drawings.

END OF SECTION

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SECTION 31 23 17 - TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavating trenches for utilities outside building to utility service.
   2. Compacted fill from top of utility bedding to subgrade elevations.
   3. Backfilling and compaction.

1.2 QUALITY ASSURANCE

A. Perform Work according to City of Piqua standards as applicable.

1.3 FIELD MEASUREMENTS

A. Verify field measurements, inverts, etc prior to fabrication.

1.4 COORDINATION

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Subsoil / Granular Fill: Type as required to suit conditions, suitability installed in compacted lifts.

2.2 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable, woven.

PART 3 EXECUTION

3.1 LINES AND GRADES

A. Lay pipes to lines and grades indicated.
   1. Architect/Engineer may make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

A. Call local utility line information service not less than three working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum locations.

C. Protect plant life, lawns and other features remaining as portion of final landscaping.

D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Maintain and protect above and below grade utilities indicated to remain.

F. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

3.3 TRENCHING

A. Excavate subsoil required for utilities to utility service.

B. Perform excavation within 24 inches of existing utility service according to utility's requirements.

C. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.

D. Excavate bottom of trenches maximum 24 inches wider than outside diameter of pipe.

E. Excavate trenches to depth required for utilities. Provide uniform and continuous bearing and support for bedding material and pipe and utilities.

F. Do not interfere with 45-degree bearing splay of foundations.

G. When Project conditions permit, slope side walls of excavation starting 24 inches above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this Section.

H. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Architect/Engineer until suitable material is encountered.

I. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.

J. Trim excavation. Remove loose matter.

K. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Architect/Engineer.

L. Remove excess subsoil not intended for reuse, from Site.

3.4 SHEETING AND SHORING

A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.

B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.

C. Design sheeting and shoring to be removed at completion of excavation Work.

D. Repair damage caused by failure of sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

E. Repair damage to [new] [and] [existing] Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen fill materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Place geotextile fabric prior to placing subsequent fill materials.

D. Place material in continuous layers as follows:
   1. Subsoil Fill: Maximum 8 inches compacted depth.
   2. Structural Fill: Maximum 6 inches compacted depth.
   3. Granular Fill: Maximum 6 inches compacted depth.

E. Employ placement method that does not disturb or damage foundation perimeter drainage, utilities in trench, and any other obstructions or utilities encountered.

F. Maintain optimum moisture content of fill materials to attain required compaction density.

G. Protect open trench to protect the public/residents.

3.6 TOLERANCES

A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.7 FIELD QUALITY CONTROL

A. Perform laboratory material tests according to ASTM D1557.

B. Perform in place compaction tests according to following:
   1. Density Tests: ASTM D1556.
   2. Moisture Tests: ASTM D3017.

C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.8 PROTECTION OF FINISHED WORK

A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

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SECTION 32 12 16 - ASPHALT PAVING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Asphalt Paving, Base, Asphalt Maintenance and Rehabilitation and related materials.

1.2 SUBMITTALS

A. Product Data:
   1. Submit product information for asphalt and aggregate materials.
   2. Submit mix design with laboratory test results supporting design.

B. Tennis Court Asphalt Mix:
   1. Complete Mix Design Submittal Checklist and contain at a minimum the following information:
      a. All Aggregate Gradations and Quality Measurements
      b. Plot (0.45 power graph) of Final Aggregate Blend
      c. Bulk (dry) Specific Gravity of All Aggregates and Final Blend (Gsb) including worksheets for natural (virgin) as well as reclaimed asphalt pavement (RAP).
      d. Statement of Asphalt Binder (PG) being used in Asphalt Mixture
      e. Optimum % Asphalt Binder (Pb)
      f. Mix Air Voids at Optimum (Va)
      g. Bulk Specific Gravity of Mix at Optimum (Gmb)
      h. Theoretical Maximum Specific Gravity at Optimum (Gmm)
      i. Voids in the Mineral Aggregate (VMA) and Voids Filled with Asphalt (VFA)
      j. Dust to total AC Ratio
      k. All Design Data and associated Design Curves

1.3 QUALITY ASSURANCE

A. Perform Work according to State of Ohio, ODOT standards as applicable.
   1. State of Ohio Department of Transportation Construction and Materials Specifications Guide shall be used as a reference for all applicable materials, construction conditions, operations, and finished products, etc.

B. Mixing Plant: Conform to State of Ohio, ODOT standard.

C. Obtain materials from same source throughout.

1.4 AMBIENT CONDITIONS

A. Do not place asphalt when ambient air or base surface temperature is less than 50 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 degrees F below bitumen suppliers bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.1 ASPHALT MATERIALS

A. Subgrade: ODOT Item 204.
   1. Compact the subgrade materials that have a maximum dry density of 100 to 105 pounds per cubic foot to not less than 102 percent of maximum dry density. Compact all other subgrade materials to not less than 100 percent of maximum dry density. Determine the maximum dry density using AASHTO T99, AASHTOT T272, or test section method in Supplement 1015.

B. Aggregate Base Course: ODOT Item 304.
   1. 98% of the material's maximum dry density as determined by the modified Proctor Test (AASHTOT-180 or ASTM D-1557)

C. Tack Coat: ODOT Item 407.
   1. Use one of following types: 702.04 RS-1, SS-1, SS-1h, CRS-1, CSS-1, or CSS-1h; or 702.13

D. Intermediate Asphalt Surface: ODOT Item 403/448, Type 1, medium duty.

E. Asphaltic Binder Course: ODOT Item 301

F. Asphaltic Concrete Surface Course: ODOT Item 404/448, Type 1, medium duty.

2.2 ASPHALT MAINTENANCE MATERIALS

A. Sealcoat: ASTM D244; ASTM D 2939
   1. Asphalt Emulsion Pavement Sealer with mineral/sand filler, polymer additive, water.

B. Spot Primer: Oil spot primer formulated to ensure adhesion of pavement sealer to oil, gas, grease, and chemical stained areas on asphalt pavement.

C. Crack Seal: ODOT Item 423.
   1. Type II; mixture of PG 64-22 certified binder and polyester fibers; hot applied type. Modified, single component, rubber/asphalt joint and crack sealant. Formulated for sealing asphalt cracks.

PART 3 EXECUTION

3.1 EXAMINATION

A. General:
   1. Install Work in accordance with ODOT and City of Piqua standards, including all base and preparation.
   2. Scheduling: Schedule and manage work to minimize cold joints in the paving system. Coordinate requirements with Owner prior to mobilizing on the job.
   3. Clean all existing surfaces and remove any foreign debris.
   4. Ensure positive drainage to storm drains/ catch basins throughout. Provide leveling course as required to attain proper drainage [confirm conditions with Owner prior to proceeding].

B. Mechanically sweep, blow, or scrub pavement surfaces immediately prior to commencement of Work. Clean pavement surfaces of all loose foreign matter. Verify surfaces are dry.

C. Protect existing improvements, adjacent finishes, overhanging trees, and plant life from heat damage by individual shielding and water spray.

D. Protect manhole covers and frames, catch basin covers and frames.

3.2 APPLICATION – GENERAL REQUIREMENTS

General: Refer to Civil Drawings for specific asphalt composition.

A. New Asphalt Paving
   1. Adjust sub-grade elevations to prep for new asphalt paving and to match adjacent elevations of parking lot where applicable.
   2. Install new compacted aggregate base course.
   3. Notify Owner of any subgrade deficiencies requiring undercut.
   4. NOTE: Contractor responsible to maintain positive drainage across entire lot / paved area. Contact Owner for additional directive as needed by existing conditions.
   5. Apply Tack Coat
   6. Machine install base course asphalt over primed area. Minimum thickness of finished, compacted pavement to be as specified and asphalt tonnage yield should be based on the

specified compacted minimum thickness. Tickets will be collected at end of each day and final tonnage yield must be within 5% of expected fully compacted yield.

7. Apply Tack Coat
8. Machine install surface asphalt over primed area. Minimum thickness of finished, compacted pavement to be as specified and asphalt tonnage yield should be based on the specified compacted minimum thickness. Tickets will be collected at end of each day and final tonnage yield must be within 5% of expected fully compacted yield.
9. Compact each layer using 3 ton or greater vibratory rollers.
10. Seal all edges of paved area where matched to existing asphalt surfaces using non-tracking sealant.

3.3 ASPHALT MAINTENANCE REPAIRS

A. Crack Sealer
   1. All Longitudinal, transverse and block cracks are to be thoroughly cleaned using compressed air lance as necessary. Remove all vegetation and debris from cracks. Clean lot of all debris.
      a. Notify Owner in advance if size [width or depth] of crack exceeds the manufacturer's recommendations for crack seal. Request directive to proceed.
   2. Seal cracks per ASTM D3405/D6690
   3. All fatigue crack areas are to be circled by filling perimeter of area. Do not fill interior of any fatigue (alligator) crack areas.

B. Sealcoat
   1. Thoroughly clean pavement surface of all dirt and debris. Remove all vegetation overgrowing perimeter of parking lot.
   2. Scrape and prime oil spots with latex oil primer.
   3. Apply two coats of approved emulsion sealer meeting manufacturer's recommended application methods and all state and federal specifications.
   4. Mix sealer according to manufacturer's recommendations, with 3-5 lbs. sand load and 2% polymer additive.
   5. First coat to be applied using squeegee applicator at a rate of 0.12 gallons per square yard.
   6. Second coat to be applied using a sprayer at a rate of 0.08 gallons per square yard.
   7. Barricade freshly sealed area to direct traffic to stay off area for minimum of 24 hours after final coat has dried.

END OF SECTION

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SECTION 32 13 13 - CONCRETE PAVING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete paving for: paving, curbs, and sidewalks

1.2 SUBMITTALS

A. Product Data:
   1. Submit product information for concrete, cement, and aggregate materials.
   2. Submit mix design with laboratory test results supporting design.

1.3 QUALITY ASSURANCE

A. Perform Work according to State of Ohio, ODOT standards as applicable.
   1. State of Ohio Department of Transportation Construction and Materials Specifications Guide shall be used as a reference for all applicable materials, construction conditions, operations, and finished products, etc.
   2. Perform Work in accordance with ACI 330.

PART 2 PRODUCTS

2.1 MATERIALS

A. Subgrade: ODOT Item 204.
   1. Compact the subgrade materials that have a maximum dry density of 100 to 105 pounds per cubic foot to not less than 102 percent of maximum dry density. Compact all other subgrade materials to not less than 100 percent of maximum dry density. Determine the maximum dry density using AASHTO T99, AASHTOT T272, or test section method in Supplement 1015.

B. Aggregate Base Course: ODOT Item 304 [304.01 and 304.02].
   1. 98% of the material's maximum dry density as determined by the modified Proctor Test (AASHTOT-180 or ASTM D-1557)

C. Concrete: ODOT Item 452 Nonreinforced Portland cement concrete pavement

D. Concrete: ODOT Item 499.
   1. Class QC 1, 4,000 PSI design strength at 28 days; 2,000 Coulombs maximum Permeability; Cement Content minimum 520 lb.; well –graded aggregate
   2. Maximum slump 4 inches.
   3. Air Content: 6% +/- 2%; ASTM C260

E. Cement: ASTM C150 Normal Type I Portland type, gray color.

F. Fine and Coarse Aggregates: ASTM C33, Class 4S.

G. Water: ASTM C94, potable, Clean, not detrimental to concrete without deleterious amounts of chloride ions.

2.2 REINFORCEMENT MATERIALS

A. Reinforcement:
   1. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.
   2. Welded Deformed Wire Fabric: ASTM A497/A497M; in flat sheets; unfinished.
   3. Dowels: ASTM A615/A615M; 60 ksi yield strength, plain steel bars; cut to length indicated on Drawings, square ends with burrs removed; unfinished.

2.3 ACCESSORIES

A. Forms: Wood or steel material, profiled to suit conditions; conform to ACI 301.

B. Joint Filler: ASTM D1751; Asphalt impregnated wood fiberboard.

C. Reinforcement Mesh: 6x6-W1.4xW1.4 welded wire reinforcement

D. Liquid Surface Sealer: Penetrating Silane/Siloxane Sealer; clear, non-yellowing UV resistant; vapor permeable.

E. Curing Compound: ASTM C309, white pigmented water based liquid membrane.

F. Use accelerating admixtures in cold weather only when approved by the Architect/Engineer in writing. Use of admixtures will not relax cold weather placement requirements.

G. Use set retarding admixtures during hot weather only when approved by the Architect/Engineer in writing.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify gradients and elevations of base.

B. Verify compacted base is ready to support paving and imposed loads.

C. Moisten substrate to minimize absorption of water from fresh concrete.

D. Sawcut and remove existing concrete to allow installation of new concrete as indicated.

3.2 FORMING

A. Place and secure forms to correct location, dimension, and profile. Secure forms to allow the placement of concrete to be continuous and true.

B. Place joint filler in joints, vertical in position, in straight lines. Secure to formwork.

C. Place control joints at maximum 30 foot intervals. Align joints.

D. Place joint filler between paving components and other appurtenances.

E. Chamfer outside corners and edges of permanently exposed concrete. – ¾" chamfer

3.3 PLACING CONCRETE - GENERAL

A. Place concrete in accordance with ACI 330.

B. Place reinforcement to achieve pavement and concrete alignment as appropriate.

C. Check with electronic level that the correct slopes have been achieved to provide drainage.

D. Do not disturb reinforcement or formwork components during concrete placement.

E. Place concrete continuously between predetermined joints.

F. Apply surface sealer per manufacturer's instructions.

3.4 INSTALLATION

A. Finishing:
   1. Apply surface retarder where exposed aggregate finish is required.
   2. Area Paving: Light broom.
   3. Sidewalk Surfaces: Light broom, radiused and trowel joint edges.
   4. Curbs and Gutters: Light broom.
   5. Apply curing compound on exposed concrete surfaces immediately after finishing.

END OF SECTION

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SECTION 32 17 23 - PAVEMENT MARKINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Traffic lines and markings.
   2. Paint.

1.2 SUBMITTALS

A. Product Data: Paint formulation for each type of paint.

B. Manufacturer's Certificate: Products meet or exceed specified requirements.

C. Test and Evaluation Reports: Submit source and acceptance test results according to AASHTO M247.

D. Manufacturer's Instructions: Application temperatures, eradication requirements, application rate, line thickness, type of glass beads, bead embedment and bead application rate, and any other data on proper installation.

1.3 QUALITY ASSURANCE

A. Perform Work according to State of Ohio, ODOT standards.

B. Manufacturer: Company specializing in manufacturing products specified in this Section with five years' experience.

C. Applicator: Company specializing in performing Work of this Section with five years' experience.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Invert containers several days prior to use when paint has been stored more than two months. Minimize exposure to air when transferring paint. Seal drums and tanks when not in use.

1.5 AMBIENT CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.

B. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.

C. Do not apply paint when temperatures are expected to fall below 50 degrees F for 24 hours after application.

D. Volatile Organic Content (VOC). Do not exceed State or U.S. EPA maximum VOC on traffic paint.

1.6 WARRANTY

A. Furnish one-year manufacturer's warranty for traffic paints.

PART 2 PRODUCTS

2.1 PAINTED PAVEMENT MARKINGS

A. Performance / Design Criteria:
   1. Paint Adhesion: Adhere to road surface forming smooth continuous film one minute after application.
   2. Paint Drying: Tack free by touch so as not to require coning or other traffic control devices to prevent transfer by vehicle tires within two minutes after application.

B. Paint: Ready mixed, conventional and fast dry waterborne traffic paints, lead-free, non-toxic, NASSHTO Test Deck, minimum retroreflectance of 100 mcds, durability rating of 6 or more after in place for nine months; within following limits: Sherwin Williams, Pro-Park 113.80 or Equal.
   1. Volume Solids: 62 +/- 2%
   2. Weight Solids 77 +/- 2%
   3. VOC <50 g/L; <0.42 lb/gal

2.2 EQUIPMENT

A. Continuous Longitudinal Line Application Machine:
   1. Dual-nozzle paint gun to simultaneously apply parallel lines of indicated width in solid or broken patterns or various combinations of those patterns.
   2. Pressurized bead gun to automatically dispense glass beads onto painted surface, at required application rate.
   3. Measuring device to automatically and continuously measure length of each line placed, to nearest foot.
   4. Device to heat paint for fast dry applications.

B. Machine Calibration:
   1. Calibrate equipment to be in conformance with ODOT requirements as applicable.
   2. Paint Guns: Calibrate to simultaneously apply paint binder at uniform rates as specified with an allowable tolerance of plus or minus 1 mil.
   3. Bead Guns: Calibrate to dispense glass beads simultaneously at specified rate. Check guns by dispensing glass beads into gallon container for predetermined fixed period of time. Verify weight of glass beads.

C. Other Equipment:
   1. For application of crosswalks, intersections, stop lines, legends and other miscellaneous items by walk behind stripers, hand spray or stencil trucks, apply with equipment meeting requirements of this Section. Do not use hand brushes or rollers.

PART 3 EXECUTION

3.1 PREPARATION

A. Maintenance and Protection of Traffic:
   1. Prevent interference with marking operations and to prevent traffic on newly applied markings before markings dry.
   2. Coordinate access requirements with Owner prior to application of markings.

B. Surface Preparation.
   1. Clean and dry paved surface prior to painting.
   2. Blow or sweep surface free of dirt, debris, oil, grease or gasoline.
   3. Spot location of final pavement markings as specified and as indicated by applying pavement spots 25 feet o.c.

3.2 APPLICATION

A. Agitate paint for 1 to 15 minutes prior to application to ensure even distribution of paint pigment.

B. Dispense paint at ambient temperature or heated as applicable to wet film thickness of 15 mils.

C. Unless material is track free at end of paint application convoy, use traffic cones to protect markings from traffic until track free. When vehicle crosses a marking and tracks it or when splattering or over spray occurs, eradicate affected marking and resultant tracking and apply new markings.

3.3 TOLERANCES

A. Maximum Variation from Wet Film Thickness: 1 mil.

B. Maximum Variation from Wet Paint Line Width: Plus or minus 1/8 inch.

C. Maintain cycle length for skip lines at tolerance of plus or minus 6 inches per 40 feet and line length of plus or minus 3 inches per 10 feet.

3.4 FIELD QUALITY CONTROL

A. Inspect for incorrect location, insufficient thickness, line width, coverage, retention, uncured or discolored material, and insufficient bonding.

B. Repair lines and markings, which after application and curing do not meet following criteria:
   1. Incorrect Location: Remove and replace incorrectly placed patterns.
   2. Insufficient Thickness, Line Width, Paint Coverage, Glass Bead Coverage or Retention: Prepare defective material by acceptably grinding or blast cleaning to remove substantial amount of beads and to roughen marking surface. Remove loose particles and debris. Apply new markings on cleaned surface according to this Section.
   3. Uncured or Discolored Material, Insufficient Bonding: Remove defective markings according to this Section and clean pavement surface 1 foot beyond affected area. Apply new markings on cleaned surface according to this Section.

C. Replace defective pavement markings as specified throughout warranted period. Replace markings damaged by anti-skid materials, chemical deicers, snow plowing or other loss of marking material regardless of cause. When markings are damaged by pavement failure or by Owner's painting, crack sealing, or pavement repair operations, Contractor is released from warranty requirements for damaged Work.

D. Replace failed or defective markings in entire section of defective markings within 30 days after notification when any of following exists during warranty period:
   1. Marking is discolored or exhibits pigment loss, and is determined to be unacceptable by Owner.
   2. More than 15 percent of area of continuous line, or more than 15 percent of combined area of skip lines, within any 528 foot section of roadway is missing.

E. Replace pavement marking material under warranty using original or better type material. Continue warranty to end of original warranty period even when replacement materials have been installed as specified.

F. When eradication of existing paint lines is necessary, eradicate by shot blast or water blast method. Do not gouge or groove pavement more than 1/16 inch during removal. Limit area of removal to area of marking plus 1 inch on all sides. Prevent damage to transverse and longitudinal joint sealers, and repair any damage according to requirements in Section 32 12 16.

3.5 PROTECTION

A. Protect painted pavement markings from vehicular and pedestrian traffic until paint is dry and track-free. Follow manufacturer's recommendations or use minimum of 30 minutes. Consider barrier cones as satisfactory protection for materials requiring more than two minutes dry time.

3.6 PAVEMENT MARKING APPLICATION / REQUIREMENTS

A. Thoroughly clean pavement surface of all dirt and debris.

B. Stripe new asphalt lot as indicated.

C. Paint to be applied at a wet mil thickness of 15 mm, 1 coat.

D. All markings shall be applied with a commercial motorized striping machine.

END OF SECTION

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SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fence framework, fabric, and accessories.
   2. Excavation for post bases.
   3. Concrete foundation for posts and center drop for gates.
   4. Manual gates and related hardware.

1.2 SYSTEM DESCRIPTION

A. Fence Height:
   1. As indicated on drawings.

B. Line Post Spacing: At intervals not exceeding 10 feet.

C. Fence Post and Rail Strength: Conform to ASTM F1043, Group IC, Heavy Industrial Fence quality.

1.3 SUBMITTALS

A. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.

B. Product Data: Fabric, posts, accessories, fittings and hardware.

1.4 QUALITY ASSURANCE

A. Supply material according to CLFMI - Product Manual.

B. Perform installation according to ASTM F567.

C. Manufacturer: Company specializing in manufacturing products specified in this Section with ten years' experience.

D. Installer: Company specializing in performing work of this Section with five years' experience.

PART 2 PRODUCTS

General: Conform to the CLFMI Product Manual.

2.1 CHAINLINK FABRIC

A. Steel Chain Link Fabric: Height indicated on drawings; 2 inch mesh size, 9 gauge core wire, top/bottom selvage knuckle end closed.
   1. Zinc-Coated Steel Fabric: ASTM A392 hot dipped galvanized before weaving.
      a. Class 1 – 1.2 oz/ft²

B. Polymer Coated Steel Fabric: ASTM F668; Height indicated on drawings; 2 inch mesh size, 9 gauge core wire [size specified is the metallic coated steel core wire], top / bottom selvage knuckle end closed.
   1. Class 1 extruded
   2. Color: black as approved by Owner, in compliance with ASTM F934.

C. Fabric Selvage: Knuckle finish at bottom, knuckle finish at top. [K&K]

D. Tension Wire: 7 gage thick steel, single strand, marcelled, spiraled or crimped, conforming to ASTM A824; Type II Zinc-Coated Class 4 – 1.2 oz/ft²

E. Polymer Coated Steel Tension Wire: ASTM F1664, Class 1 extruded.

F. Tie Wire: Aluminum alloy steel wire.

2.2 PIPE MATERIALS

A. Framing / Round steel pipe and rail: ASTM F1043 Group IA Heavy Industrial Fence Framework, schedule 40 galvanized pipe per ASTM F1083. Exterior hot dipped zinc coating minimum average 1.8 oz/ft², interior hot dipped zinc coating minimum average 1.8 oz/ft². High Strength Grade. 1 [50,000 psi] minimum.
   1. Line Posts: 2.875 inch OD minimum
   2. End, Corner, and Terminal Posts: 4.0 inch OD minimum or as required by conditions and as recommended by manufacturer.
   3. Top Rail, Bottom Rail, Intermediate / Center brace rails: 1 5/8 inch OD minimum
   4. Gate Posts: 3.5 inch diameter minimum.

B. Gate Frame: ASTM F900; 2.875 inch OD minimum, sized per width of gate and manufacturer recommendations [this may require larger pipe for wider openings]. Provide all required bracing and reinforcement.
   1. Width of gate frame per drawings.

C. Polymer Coated Framework [including all fittings, caps, and accessories]: ASTM F1043, Polymer coated framework shall have a PVS coating fused and adhered to the exterior zinc coating of the post or rail. Minimum thickness of 10 mils. Color to match fabric.

2.3 SWING GATES

A. General:
   1. Gate Types, Opening Widths and Directions of Operation: As indicated on drawings.
   2. Factory assemble gates.
   3. Design gates for operation by one person.

B. Swing Gates: single and double opening, sized per drawings.
   1. Galvanized steel welded fabrication in compliance with ASTM F900.
   2. Gate frame members 1 7/8 inch OD minimum, sized per width of gate and manufacturer recommendations [this may require larger pipe for wider openings], ASTM F1043 SS 40 pipe components.
   3. Frame members spaced no greater than 8 feet apart vertically and horizontally.
   4. Welded joints protected by applying zinc-rich paint in accordance with ASTM A780.
   5. Eye Locks at end of swing arm and at Barrier Receiver Post.
   6. Positive locking gate latch fabricated of 5/16 in. thick by 1 ¾ inch pressed steel galvanized after fabrication.
   7. Swing Gate Barrier Receiver Post: 2 7/8 inch OD minimum with eye-lock loop
   8. Galvanized malleable iron or heavy gauge pressed steel post and frame hinges. Match gate fabric to that of the fence system where indicated on drawings.
   9. Gateposts, ASTM F1043 SS 40 pipe, Polymer coated gate frames and gateposts; match the coating type and color to that specified for the fence framework.
   10. Moveable parts such as hinges, latches and drop rods may be field coated using a liquid polymer touch up.

2.4 HORIZONTAL SLIDING GATES

A. Cantilever Slide Gates: ASTM F1184 Type II 1.
   1. Class 1-External Roller Design: Horizontal top and bottom steel pipe "track" members to be 2.375 in. OD, vertical and internal members 1.900 in. O.D. in compliance with ASTM F1043 Group IA 1083 sch 40 pipe.
   2. Gate frame to be fabricated by welding, vertical and horizontal members located no greater than 8 ft. apart.
   3. The length of back frame support section shall be a minimum of 40% of the opening. Welded joints are to be protected by applying zinc rich paint in accordance with ASTM A780.

4. Gates designed to open or close by applying an initial pull force no greater 40 lbs.
5. Match chain link fabric to that of the fence system. Positive locking latch fabricated galvanized pressed steel.
6. Gateposts, 4.000 in. OD, ASTM F1043 Group IA ASTM F1083 sch 40 pipe.
7. Provide safety protective guards for the top and bottom external rollers.

2.5 ACCESSORIES

A. Tension and Brace Bands: Galvanized pressed steel complying with ASTM F626, minimum steel thickness of 12 gauge, 1.20 oz/SF zinc coating.

B. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Sleeves, etc: ASTM F626, pressed steel galvanized after fabrication, sized for components, 1.20 oz/SF zinc coating.

C. Truss Rod Assembly: In compliance with ASTM F626, 3/8 in. diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz/ft², assembly capable of withstanding a tension of 2,000 lbs.

D. Tension Bars: In compliance with ASTM F626. Galvanized steel one-piece length 2 in. less than the fabric height. Minimum zinc coating 1.2 oz. /ft².
   1. Bars for 2 in. mesh shall have a minimum cross section of 3/16 in. by 3/4 in.

E. Polymer Coated Color Fittings: ASTM F626; polymer coating minimum thickness of 0.006 in fused and adhered to zinc coated fittings, match color to fence system.

F. Caps: Cast steel, galvanized; sized to post diameter; set screw retainer.

G. Gate Hardware: Fork latch with gravity drop, Mechanical keepers; sliding gate hardware and hardware for padlock keyed per Owner direction.
   1. Provide strong arm latch at all locations not noted to receive panic bar hardware.
   2. Provide panic bar [exit] hardware where noted.
      a. BNMA A156.3, Grade 1, Type 1 [rim exit device], push pad actuating bar, suitable for exterior use.
      b. Function: Extrance by trim when latchbolt is released by key or set in retracted position by key.
      c. Mounting: bent plate channel formed by aluminum plate, channel to span gate frame. Exit device mounted to web or channel, recessed between flanges.
   3. Provide heavy duty 110 degree hinges.

2.6 PRIVACY SLATS

A. None

2.7 FINISHES

A. Components and Fabric: Type B, zinc with organic overcoat, consisting of 0.9 oz/SF of zinc after welding, chromate conversion coating, and clear verifiable polymer film. Galvanized to ASTM A123/A123M for components; ASTM A153/A153M for hardware; ASTM A392 for fabric; 1.0 oz per sq ft coating.

B. Hardware: Galvanized to ASTM A153/A153M

2.8 CONCRETE

A. Concrete for post footings shall have a 28 day compressive strength of 3,000 PSI. Concrete shall be transit mixed, bag mix / cement not permitted.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install framework, fabric, accessories and gates according to ASTM F567.

B. Set intermediate, terminal, gate, posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

C. Line Post Footing Depth Below Finish Grade: ASTM F567 3'-6"

D. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: [ASTM F567] 3'-6"

E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods [if necessary based upon field conditions]. Install brace rail one bay from end and gate posts.

F. Install top rail through line post tops and splice with 6 inch long rail sleeves.

G. Install center and bottom brace rail on corner gate leaves.

H. Place fabric on outside of posts and rails. Attach fabric to the terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. carriage bolts spaced no greater than 12 inches on center. Chain link fabric to be stretched taut free of sag. Fabric to be secured to the line post with tie wires spaced no greater than 12 inches on center and to rail spaced no greater than 18 inches on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 inches apart. Aluminum alloy wire ties shall be wrapped around the post or rail and attached to a fabric wire picket on each side of the post or rail by twisting the tie wire around the fabric wire picket two full turns per ASTM F567. Excess wire shall be cut off and bent over to prevent injury. The installed fabric shall have a ground clearance on no more than 2 inches.

I. Do not stretch fabric until concrete foundation has cured 28 days.

J. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

K. Position bottom of fabric 2 inches above finished grade.

L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

N. Install bottom tension wire stretched taut between terminal posts.

O. Gate Installation:
   1. Swing Gates: Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be per drawings. Gates shall be plumb in the closed position having a bottom clearance of 3 in. grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. in the closed position. Double gate drop bar receivers shall be set in a concrete footing minimum 6 in. diameter 24 in. deep. Gate leaf holdbacks shall be installed for all double gates.
   2. Horizontal Slide Gates: Installation varies by design and manufacturer, install according to manufacturer's instructions and in accordance with ASTM F567. Gates shall be plum in the closed position, installed to slide with an initial pull force no greater than 40 lbs. Double gate drop bar receivers to be installed in a concrete footing minimum 6 in. diameter, 24 in. deep. Roller guards and guide posts must be installed on Type I external roller cantilever slide gate in compliance with ASTM F1184. Ground clearance shall be 3 in., grade permitting.

P. Support gates from gate posts. Do not attach hinged side of gate from building wall.

Q. Install gate with fabric to match fence.

R. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

S. Excavate holes for posts to diameter and spacing indicated on Drawings without disturbing underlying materials.

T. Center and align posts. Place concrete around posts, and vibrate or tamp for consolidation. Verify vertical and top alignment of posts and make necessary corrections.

U. Extend concrete footings 1 inch above grade, and trowel, forming crown to shed water.

V. Allow footings to cure minimum seven days before installing fabric and other materials attached to posts.

3.2 ERECTION TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch.

B. Maximum Offset from Indicated Position: 1 inch.

C. Minimum distance from property line: 6 inches.

END OF SECTION

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SECTION 32 92 19 – SEEDING / SITE REPAIR

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Seeding and Site Repairs related to the site development.

1.2 DEFINITIONS

A. Weeds: Vegetative species other than specified species to be established in given area.

B. Finish Grade: Elevation of finished surface of planting soil.

C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

D. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

E. Lawn Maintenance: All materials and operations necessary to establish and maintain a healthy stand of turf following initial seeding operations. Including but not limited to, mowing, fertilization, watering and treatment for weeds, fungus and disease as needed. Maintenance remains responsibility of Contractor until Project closeout or a minimum of one full growing season.

1.3 SUBMITTALS

A. Product Data: Topsoil, Seed mix, fertilizer, mulch, and other accessories.

1.4 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.6 SCHEDULING

A. Watering: Do not begin seeding operations until a plan for watering the grass after planting and during establishment is in place and operating to provide uniform coverage of all areas to receive seed.

1.7 LAWN MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than following periods:
   1. Seeded Lawns: Maintenance remains responsibility of Contractor until Project close out or a minimum of one full growing season. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.

PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species: Seed of grass species as follows, with not less than 85 to 87 percent germination, not less than 99 percent pure seed, and not more than 0.05 percent weed seed:
   1. Turf Type Tall Fescue: Proportioned by weight as follows:
      a. 90 percent Tall Fescue (Festuca arundinacea)
         1) Three Varieties (equal three part blend.)
      b. 5 percent Perennial Rye Grass (Lolium perenne)
      c. 5 percent Kentucky Bluegrass (Poa pratensis)

2.2 SOIL AND SOIL MODIFICATION MATERIALS

A. Topsoil: ASTM D 5268, Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, free of subsoil, clay or impurities, plants, weeds and roots, free of stones 1 inch or larger. Equal to ODOT Item 653.

B. Fertilizer: Commercial fertilizer shall be used for initial preparation and shall conform to applicable state fertilizer laws. Provide fertilizer to improve existing topsoil prior to planting. Use of organic lawn fertilizer shall be used for surface application after grass is up. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to site in original, unopened containers, each bearing manufacturer's guaranteed analysis. Fertilizer, which becomes caked or otherwise damaged, making it unsuitable for use, will not be acceptable. Commercial-grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.

C. Lime: ASTM C602, Class T agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.

D. Organic Compost: leaf and mushroom compost to be added to mulch at 1 cubic yard per 5 cubic yards of mulch.

E. Weed-Control Additive: Preen weed control.

2.3 ACCESSORIES

A. Hydro / Paper Fiber Mulch: Recycled newsprint that is shredded for purpose of mulching seed.
   1. Application: 30 percent of mulch mixture.

B. Straw Mulch: Provide air-dry, clean, mildew, weed, and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

2.4 EROSION CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd. (0.5 kg/sq. m), with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

C. Erosion-Control Mats: Cellular, non-biodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of **3-inch** nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

2.5 SOURCE QUALITY CONTROL

A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.

B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.

C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance.
   1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
   2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
   3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
   4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
   1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
   2. Protect grade stakes set by others until directed to remove them.
   3. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

A. Limit lawn subgrade preparation to areas to be planted.

B. Newly Graded Subgrades (6 months or less): Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1/2 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
   1. Apply fertilizer directly to topsoil/subgrade before loosening, per results of topsoil analysis.
   2. Spread to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

C. Unchanged Subgrades (7 months or greater): If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
   1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
   2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
      a. Apply fertilizer directly to surface soil before loosening per results of topsoil analysis.
   3. Remove stones larger than 1/2 inch in any dimension and sticks, roots, trash, and other extraneous matter.
   4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

E. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, restore areas if eroded or otherwise disturbed after finish grading.

3.4 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

B. Mulch: Hydromulch seeded areas at rate of 1800 pounds per acre. Use Bowie hydromulcher or equal to apply mulch, unless otherwise noted.
   1. Application: Apply 70 percent wood cellulose fiber and 30 percent paper fiber mulch.
   2. Protect seeded areas from hot, dry weather where irrigation is not available or drying winds by applying straw mulch where slope does not exceed 6:1. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
      a. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment or bond straw mulch by spraying with asphalt emulsion at the rate of 10 to 13 gal./1000 sq.ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.

3.5 SEEDING

A. Sow seed with seeding machine. Do not broadcast or drop seed. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
   1. Do not use wet seed or seed that is moldy or otherwise damaged.
   2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 5 to 8 lb/1000 sq. ft.

C. Roll lightly and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

E. Protect seeded areas with erosion-control mats where shown, installed and anchored according to manufacturer's written instructions.

F. Protect seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
   1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.6 SEED PROTECTION

A. Identify seeded areas with stakes and string around area periphery.

3.7 LAWN RENOVATION

A. Renovate existing lawn.

B. Renovate existing lawn damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
   1. Reestablish lawn where settlement or washouts occur or where minor regrading is required.
   2. Provide new topsoil as required.

C. Strip sod and vegetation from diseased or unsatisfactory lawn areas; do not bury in soil.

D. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil.

E. Mow, dethatch, core aerate, and rake existing lawn.

F. Remove weeds before seeding. Where weeds are present, apply selective herbicides as required. Do not use pre-emergence herbicides.

G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.

H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.

I. Apply soil amendments and initial fertilizers required for establishing new lawns and mix thoroughly into top 4 inches of existing soil. Provide new planting soil to fill low spots and meet finish grades.

J. Apply hydro seed or seed and protect with straw mulch as required for new lawns.

K. Water newly planted areas and keep moist until new lawn is established.

3.8 LAWN MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than following periods:
   1. Seeded Lawns: Maintenance remains responsibility of Contractor until Project close out or a minimum of one full growing season.

B. Maintain and establish lawn by watering as applicable to installation and application methods, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn. Provide materials and installation the same as those used in the original installation.

C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources.

D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet.

E. Fertilization: Apply fertilizer after initial mowing and when grass is dry.

END OF SECTION

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