ADDENDUM NUMBER 2
September 3, 2026

UWO Baseball Field Improvements
University of Wisconsin – Oshkosh

From:
Ayres Associates.
700 Pilgrim Way, Suite 180
Green Bay, WI 54304

To:
Prospective Bidders

This Addendum is issued to modify, explain, and amend the originally issued Specifications and Drawings dated July 23, 2026 and is hereby made a part of the Contract Documents. Please acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may result in Bidder disqualification.

This Addendum consists of 2 pages and the attached documents:
Specification Sections: GPC Invitation to Bid, MEP Invitation to Bid, GPC Bid Form, MEP Bid Form, 02 32 00.

CHANGES TO BIDDING REQUIREMENTS:

Volume 1 GPC Table of Contents.

- Page 1, line 42. Add new line as follows:
  02 32 00 Geotechnical Investigation 02 32 00-47

Volume 1 MEP Table of Contents.

- Page 1, line 41. Add new line as follows:
  02 32 00 Geotechnical Investigation 02 32 00-47

Volume 2 Table of Contents.

- Page 1, line 12. Add new line as follows:
  02 32 00 Geotechnical Investigation 02 32 00-47

GPC Invitation to Bid. Delete existing document and replace with new GPC Invitation to Bid, attached.

- Page A-1, line 10: Change MEP Bid Date to September 10, 2026.
- Page A-1, line 11: Change GPC Bid Date to September 24, 2026.

GPC Bid Form. Delete existing document and replace with new GPC Bid Form, attached.

- Page C-1, line 11: Change GPC Bid Date to September 24, 2026.
- Page C-3, line 51 and 52: add new lines

Undercutting/Excavation Below Subgrade (EBS)	Section 31 22 16.15	$____ per CY	600 CY

GPC General Requirements

- Page GR-5., paragraph 6, Soil Test Borings. Remove “Not applicable to this project.” and replace with:

  “Test borings have been made and boring data has been provided; however, these records do not form a part of the Contract Documents, but are provided for information only.

  Neither the Architect/Engineer nor UWSA guarantee continuity of conditions indicated at the boring locations.

  Contractor must interpret the soil boring data and be satisfied as to the materials to be excavated and materials upon which fill or other materials may be placed.”

MEP Invitation to Bid. Delete existing document and replace with new MEP Invitation to Bid, attached.

- Page A-1, line 10: Change MEP Bid Date to September 10, 2026.
- Page A-1, line 11: Change GPC Bid Date to September 24, 2026.

MEP Bid Form. Delete existing document and replace with new MEP Bid Form, attached.

- Page C-1, line 11: Change MEP Bid Date to September 10, 2026.

MEP General Requirements

- Page GR-5, paragraph 6, Soil Test Borings. Remove "Not applicable to this project." and replace with:

  "Test borings have been made and boring data has been provided; however, these records do not form a part of the Contract Documents, but are provided for information only.

  Neither the Architect/Engineer nor UWSA guarantee continuity of conditions indicated at the boring locations.

  Contractor must interpret the soil boring data and be satisfied as to the materials to be excavated and materials upon which fill or other materials may be placed."

CHANGES TO SPECIFICATIONS:

Section 02 32 00 – Geotechnical Investigation. Add new specification section, attached.

- End of Addendum No. 2 -

GPC INVITATION TO BID (Rev 04/2024)

THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

UWO BASEBALL FIELD IMPROVEMENTS
UNIVERSITY OF WISCONSIN - OSHKOSH
OSHKOSH, WISCONSIN

UWSA Project No. **F-25-001**

BID OPENING for MEP BIDDERS: 2:00 P.M., September 10, 2026.
BID OPENING for GENERAL PRIME CONTRACTOR BIDDERS: 2:00 P.M., September 24, 2026.

OWNER: The Board of Regents of the University of Wisconsin System hereinafter termed the Owner.

NOTICE: All potential bidders must be certified by DOA prior to submitting bids on UW-Managed construction projects. All bids received from contractors who are not certified will be rejected. Contractor certification applications and instructions for completing the form may be obtained from the DOA Website DFD Contractor Certification page: https://doa.wi.gov/Pages/DoingBusiness/ContractorCertification.aspx .

This project is being let using a single prime bidding and contracting process. the Owner will publicly bid the applicable mechanical, electrical, plumbing, and fire protection (MEP) divisions of work **first.** Within five (5) days of the MEP bid opening, the Owner will identify a lowest, qualified, responsible, certified bidder in each applicable MEP division of work. These successful MEP bids must be included in all general prime contractor bids received. The owner will enter into a single contract with the lowest, qualified, responsible, certified general prime contractor and this general prime contractor shall enter into subcontracts with the successful MEP bidders. If a project does not include any mechanical, electrical, plumbing, or fire protection divisions of work, the Owner will bid one bid package for all work to general prime contractors.

The University of Wisconsin System Administration (UWSA) will ONLY be accepting construction bidding documents as follows:

- **PDF scanned file of all required bid documents, including bid and bid bond forms with an either original wet signatures or digital electronic signatures emailed to UWSA Bid Submissions at uwsabidsubmissions@wisconsin.edu.** If submitting documents with electronic signatures, further information and requirements are in the following bullets.
- Include Project Name, Project Number, Project Location, Category of Work being bid on, Bid Date, and the Name and Address of Bidder within email submission.
- For documents that require a seal, please darken these scans for better visibility.
- For bids including a cashier's/certified check, please scan front and back of check and include with submission.
- Bidders may submit PDFs of bonds and powers of attorney containing e-signatures, e-corporate seals, and e-notaries affixed to each document in accordance with the Surety's obligations. **Telephone numbers are required for all electronic signatories** for oral verification as needed. Wisconsin law permits the use of remote online notarization if it is performed **using technology providers that have been approved by the Department of Financial Institutions (DFI)**. If a remote online notarization is used, it is the responsibility of the contractor and its Surety to ensure that the technology provider has been approved by DFI.
- Bidders may submit bid forms containing electronic signatures, but those signatures must be obtained using approved software in order to be accepted. **DocuSign software and Adobe Digital Signature software are approved for e-signatures** for submission of bids. Use of any other e-signature software will require additional verification and the bidder must obtain approval at least three (3) business days prior to submission of bids. Please contact Lindsay.woznick@wisconsin.edu first regarding any proposed electronic signature software.

UWSA will NO LONGER accept bids via third party delivery (UPS, FEDEX, or DHL) or bids being dropped off in person.

- Bids must be submitted to the email address listed above (uwsabidsubmissions@wisconsin.edu) by **1:30 p.m. CT** on the day that the bid submission is due. Email PDF submissions will receive a confirmation reply from UWSA. If for any reason a reply is not received after a PDF bid is emailed, please contact Lindsay Woznick at 608-265-6462..
- **Bidders are responsible for their bid being delivered by the time specified and delivery is entirely at the bidder's risk.**

The bid opening will be conducted via teleconference with the information listed below. All bids will be opened at 2:00 p.m. CT on the scheduled date. All lines will be muted upon entry of the teleconference. Upon dialing into the teleconference line, you will hear silence until the bid starts.

Join Zoom Meeting
• One Tap Mobile:
+13052241968,,96119421731#,,,,*820674# US
Dial-In
+1 312 626 6799 US (Chicago)
https://wisconsin-edu.zoom.us/j/96119421731?pwd=eVF6VzM0Z2ZTalhqaCtpVGNLTnkzZz09&from=addon
• Meeting ID: 961 1942 1731
• Passcode: 820674

In general, the work consists of the replacement of the existing grass baseball field with an artificial turf field. Also included is replacement of scoreboard, installation of additional lighting, electrical work, site grading, storm sewer, concrete pavement, concrete curb and gutter, fencing and gate installation, and site restoration.

Bidding documents (drawings, specifications, and addenda) may be obtained only as electronic files (in PDF format)**:** as a downloadable file from the University of Wisconsin System Administration's Design and Construction Opportunities website (see website address below). Bidding documents may also be seen at various Builders' Exchanges that have downloaded the documents. Additional project bidding information, including plan holders lists are available on the University of Wisconsin System public website: https://www.wisconsin.edu/procurement/construction/. After opening the web page, select the UWO Baseball Field Improvements project.

Base Bid will be received for: A single lump sum bid for All Work.

Bid Guarantee in the amount of 10% of the Bid must accompany each bid submitted. Contractor MUST submit hard copies of bid to UWSA within 10 working days of being notified of award.

Contract offer and construction phase records will be processed via email.

A pre-bid tour will be conducted at the site on August 25, 2026 beginning at 3:00 P.M. Participants should meet at the Titan Stadium Parking Lot located at 450 Josslyn St, Oshkosh, WI. All bidders are highly encouraged to attend this Pre-bid Conference / Building Tour and no separate tours will be conducted. The contact person is Ayres, Brett Glaeser, 700 Pilgrim Way Suite 180, Green Bay WI 54304, (920) 498-1200.

Any other questions related to this project can be sent via email to the Procurement contact Lindsay Woznick at Lindsay.woznick@wisconsin.edu.

***

BID FORM – GENERAL PRIME CONTRACTOR (GPC) (Rev 04/2024)
THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM
s.16.855 Wis. Stats.

UWO BASEBALL FIELD IMPROVEMENTS
UNIVERSITY OF WISCONSIN - OSHKOSH
OSHKOSH, WISCONSIN

UWSA Project No**. F-25-001**

General Prime Contractor (GPC) Bid Opening: 2:00 P.M., September 24, 2026.

To: University of Wisconsin System Administration (UWSA)

(a joint venture)
(a corporation)
(a partnership)
We_____ (an individual)
(Cross out inapplicable)

Of_____
Street City State Zip

hereby agree to execute a contract with the Board of Regents of the University of Wisconsin System (the Owner) and a subcontract with all successful MEP Bidders identified by the Owner and listed in this bid, and to furnish satisfactory separate 100% Performance Bond and 100% Payment Bond in the amount specified no later than ten (10) days of the contract offer, and to provide all labor and material required for the construction of the project designated above, for the prices hereinafter set forth, in strict accordance with the Contract Documents prepared by **Ayres Associates, 700 Pilgrim Way, Suite 180, Green Bay, WI 54304** for the Owner and dated **July 23, 2026.**

Contact Instructions:
(For use by Owner to offer contract to the successful bidders)

Contact name:_____

Title:_____

Telephone Number:_____

Email address:_____

IMPORTANT: BEFORE SUBMITTING YOUR BID, PLEASE VERIFY THAT:

1. You have been **certified by DOA as a qualified and responsible bidder** for the amount of your bid within the division(s) of work being bid.
2. You have **entered all Bid amounts in numeric characters** (Example: $9,999);
3. You have **acknowledged receipt of all addenda;**
4. You have **signed the Bid Form**
5. You have **included a valid Bid Guarantee** for not less than 10% of the value of the bid as either:
   a) a Bid Bond signed by the contractor and surety and with a Power of Attorney attached, **or**
   b) a Cashier's Check or Bank Check pursuant to Wis stats. s. 779.14(1m)(c)2.b. and 779.14(1s). A Company or Personal Check will not be accepted.

SINGLE BASE BID - GENERAL PRIME CONTRACTOR

ALL WORK

BASE BID NO 1. ALL WORK required to fully complete the project in accordance with the Contract Documents,

for the sum of ($_____)
Enter bid amount in numeric characters only *(Example: $9,999). See Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

Base Bid No. 1 includes the bids from the following successful MEP Subcontractors identified by UWSA for the mechanical, electrical, plumbing, and fire protection divisions of work in this project. The General Prime Contractor shall enter into subcontracts with these MEP Subcontractors:

Fire Suppression Base Bid No. 2:
Identified Subcontractor: N/A

Amount:_____

Plumbing Base Bid No. 3:
Identified Subcontractor: N/A

Amount: _____

Heating Ventilating and Air Conditioning Base Bid No. 4:
Identified Subcontractor: N/A

Amount:_____

Electrical Base Bid No. 5:
Identified Subcontractor: _____

Amount:_____

Combined Base Bids Option

Base Bid No. _____ for _____(Division of Work),
Base Bid No. _____ for _____(Division of Work) and
Base Bid No. _____ for _____(Division of Work) and
Base Bid No. _____ for _____(Division of Work) Work fully complete as per specifications and related drawings, for the sum of

($_____)
Enter bid amount in numeric characters only (Example: $9,999).

UNIT PRICES (listed below are for additions to or deductions from amount of work required under the contract. See Instructions to Bidders 'Article 18 Unit Prices' for detailed instructions.) (Applicable to Base Bid No. 1)

Unit Description	Specification Section	Unit Price	Quantity Included in All Work
Contaminated Soil Removal	Section 02 61 13	$____ per CY	100 CY
Undercutting/Excavation Below Subgrade (EBS)	Section 31 22 16.15	$____ per CY	600 CY

COMMENCEMENT AND COMPLETION OF CONTRACT WORK

The undersigned agrees, if awarded the contract, to enter into a subcontract with the MEP Bidders identified by the Owner.

ADDENDUM RECEIPT

We acknowledge receipt of the following Addenda:

Addendum No._____Date_____

Addendum No._____Date_____

Addendum No._____Date_____

Addendum No._____Date_____

PRIOR TO SIGNING, BIDDERS' ATTENTION IS DIRECTED TO INSTRUCTIONS TO BIDDERS TO AVOID THE POSSIBILITY OF INVALIDATING THIS BID.

BY SIGNING THIS BID FORM, THE BIDDER ATTESTS TO PERSONAL KNOWLEDGE OF THE FOLLOWING:

1. Bidder is certified by DOA as a qualified and responsible bidder for the amount of the bid submitted, within the division(s) of work being bid.

2. In accordance with Wis. Stats. 16.855 (13) and (14) and ARTICLE 21 of these Bidding Documents, Bidder agrees to enter into a subcontract with the successful MEP Subcontractors identified by the Owner.

3. Bidder has examined the drawings and specifications, carefully prepared the bid form, and has reviewed all forms in detail before submitting bid; and bidder, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, bid rigging, bid rotation, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

4. That all work will be performed at the Bidder's own proper cost and expense, that the Bidder will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications, and at the time stated in the contract.

_____
(Firm Name)

_____
(Bidder's Printed Name)

_____
(Bidder's Title)

(Seal, if bid is by a corporation)

Date: _____ By _____
(Signature of Bidder)

[ ] Place an "X" in the box if Bidder is certified as a minority business enterprise or disabled veteran-owned business by the Wisconsin Supplier Diversity Program and wishes to be considered for the 5% bidder preference.

MEP INVITATION TO BID (Rev 04/2024)
THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

UWO BASEBALL FIELD IMPROVEMENTS
UNIVERSITY OF WISCONSIN - OSHKOSH
OSHKOSH, WISCONSIN

UWSA Project No**. F-25-001**

BID OPENING for MEP BIDDERS: 2:00 P.M., September 10, 2026.
BID OPENING for GENERAL PRIME CONTRACTOR BIDDERS: 2:00 P.M., September 24, 2026.

OWNER: The Board of Regents of the University of Wisconsin System, hereinafter termed the Owner.

NOTICE: All potential bidders must be certified by DOA prior to submitting bids on UW-Managed construction projects. All bids received from contractors who are not certified will be rejected. Contractor certification applications and instructions for completing the form may be obtained from the DOA Website DFD Contractor Certification page: https://doa.wi.gov/Pages/DoingBusiness/ContractorCertification.aspx .

This project is being let using a single prime bidding and contracting process. the Owner will publicly bid the applicable mechanical, electrical, plumbing, and fire protection (MEP) divisions of work **first.** Within five (5) days of the MEP bid opening, the Owner will identify a lowest, qualified, responsible, certified bidder in each applicable MEP division of work. These successful MEP bids must be included in all general prime contractor bids received. No later than five (5) days after the Owner identifies the successful MEP bids, the Owner will publicly open general prime contractor bids. **General prime contractor bids that do not include the successful MEP bids will be rejected.** The owner will enter into a single contract with the lowest, qualified, responsible, certified general prime contractor and this general prime contractor shall enter into subcontracts with the successful MEP bidders.

The University of Wisconsin System Administration (UWSA) will ONLY be accepting construction bidding documents as follows:

- **PDF scanned file of all required bid documents, including bid and bid bond forms with an either original wet signatures or digital electronic signatures emailed to UWSA Bid Submissions at uwsabidsubmissions@wisconsin.edu. If submitting** documents with electronic signatures, further information and requirements are in the following bullets.
- Include Project Name, Project Number, Project Location, Category of Work being bid on, Bid Date, and the Name and Address of Bidder within email submission.
- For documents that require a seal, please darken these scans for better visibility.
- For bids including a cashier's/certified check, please scan front and back of check and include with submission.
- Bidders may submit PDFs of bonds and powers of attorney containing e-signatures, e-corporate seals, and e-notaries affixed to each document in accordance with the Surety's obligations. **Telephone numbers are required for all electronic signatories** for oral verification as needed. Wisconsin law permits the use of remote online notarization if it is performed **using technology providers that have been approved by the Department of Financial Institutions (DFI)**. If a remote online notarization is used, it is the responsibility of the contractor and its Surety to ensure that the technology provider has been approved by DFI.
- Bidders may submit bid forms containing electronic signatures, but those signatures must be obtained using approved software in order to be accepted. **DocuSign software and Adobe Digital Signature software are approved for e-signatures** for submission of bids. Use of any other e-signature software will require additional verification and the bidder must obtain approval at least three (3) business days prior to submission of bids. Please contact lindsay.woznick@wisconsin.edu first regarding any proposed electronic signature software.

UWSA will NO LONGER accept bids via third party delivery (UPS, FEDEX, or DHL) or bids being dropped off in person at 780 Regent Street.

- Bids must be submitted to the email address listed above (uwsabidsubmissions@wisconsin.edu) by **1:30 p.m. CT** on the day that the bid submission is due. Email PDF submissions will receive a confirmation reply from UWSA. If for any reason a reply is not received after a PDF bid is emailed, please contact Lindsay Woznick at (608) 262-6462.
- **Bidders are responsible for their bid being delivered by the time specified and delivery is entirely at the bidder's risk.**

The bid opening will be conducted via teleconference with the information listed below. All bids will be opened at 2:00 p.m. CT on the scheduled date. All lines will be muted upon entry of the teleconference. Upon dialing into the teleconference line, you will hear silence until the bid starts.

Join Zoom Meeting
• One Tap Mobile:
+13052241968,,96119421731#,,,,*820674# US
Dial-In
+1 312 626 6799 US (Chicago)
https://wisconsin-edu.zoom.us/j/96119421731?pwd=eVF6VzM0Z2ZTalhqaCtpVGNLTnkzZz09&from=addon
• Meeting ID: 961 1942 1731
• Passcode: 820674

In general, the work consists of the replacement of the existing grass baseball field with an artificial turf field. Also included is replacement of scoreboard, installation of additional lighting, electrical work, site grading, storm sewer, concrete pavement, concrete curb and gutter, fencing and gate installation, and site restoration.

Bidding documents (drawings, specifications, and addenda) may be obtained only as electronic files (in PDF format)**:** as a downloadable file from the University of Wisconsin System Administration's Design and Construction Opportunities website (see website address below). Bidding documents may also be seen at various Builders' Exchanges that have downloaded the documents. Additional project bidding information, including plan holders lists are available on the University of Wisconsin System public website: https://www.wisconsin.edu/procurement/construction/. After opening the web page, select the UWO Baseball Field Improvements project.

Base Bid will be received as a single lump sum bid for: 2) Fire Protection (Fire Suppression); 3) Plumbing; 4) Mechanical (Heating, Ventilating, Air Conditioning); and 5) Electrical.

Bid Guarantee in the amount of 10% of the Bid must accompany each bid submitted. Contractor MUST submit hard copies of bid to UWSA within 10 working days of being notified of award.

A pre-bid tour will be conducted at the site August 25, 2026 beginning at 3:00P.M. Participants should meet at the Titan Stadium Parking Lot located at 450 Josslyn St, Oshkosh, WI. All bidders are highly encouraged to attend this Pre-bid Conference / Building Tour and no separate tours will be conducted. The contact person is Ayres, Brett Glaeser, 700 Pilgrim Way Suite 180, Green Bay WI 54304, (920) 498-1200.

Any other questions related to this project can be sent via email to the Procurement contact Lindsay Woznick at lindsay.woznick@wisconsin.edu.

***

BID FORM – MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION (MEP) (Rev 04/2024)
THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM
s.16.855 Wis. Stats.

UWO BASEBALL FIELD IMPROVEMENTS
UNIVERSITY OF WISCONSIN - OSHKOSH
OSHKOSH, WISCONSIN

UWSA Project No**. F-25-001**

Mechanical, Electrical, Plumbing, and Fire Protection (MEP) Bid Opening: 2:00 P.M., September 10, 2026.

To: University of Wisconsin System Administration (UWSA)

(a joint venture)
(a corporation)
(a partnership)
We_____ (an individual)
(Cross out inapplicable)

Of_____
Street City State Zip

hereby agree to execute a subcontract with the General Prime Contractor awarded the contract for the project designated above and to furnish satisfactory separate 100% Performance Bond and 100% Payment Bond in the amount specified no later than ten (10) days after execution of the subcontract with the General Prime Contractor, and to provide all labor and material required for the construction of the project designated above, for the prices hereinafter set forth, in strict accordance with the Bidding Documents prepared by **Ayres Associates, 700 Pilgrim Way, Suite 180, Green Bay, WI 54304** for the Owner and dated **June 26, 2026.**

(For use by General Prime Contractor to offer subcontract to the successful MEP bidders identified through UWSA)

Contact name: _____

Telephone Number: _____

Email address: _____

FAX Number: _____

IMPORTANT: BEFORE SUBMITTING YOUR BID, PLEASE VERIFY THAT:

1. You have been **certified by DOA as a qualified and responsible bidder** for the amount of your bid within the division(s) of work being bid.
2. You have **entered all Bid amounts in numeric characters** (Example: $9,999);
3. You have **acknowledged receipt of all addenda;**
4. You have **signed the Bid Form**
5. You have **included a valid Bid Guarantee** for not less than 10% of the value of the bid as either:
   a) a Bid Bond signed by the contractor and surety, with a Power of Attorney attached, **or**
   b) a Cashier's Check or Bank Check pursuant to Wis. Stat. s. 779.14(1m)(c)2.b. and 779.14(1s). A Company or Personal Check will not be accepted.

FIRE SUPPRESSION

BASE BID NO. 2 Fire Suppression Work fully complete as per Bidding Documents, for the sum of

($_____)

Enter bid amount in numeric characters only *(Example: $9,999). See MEP Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

PLUMBING

BASE BID NO. 3 Plumbing Work fully complete as per Bidding Documents, for the sum of

($_____)

Enter bid amount in numeric characters only *(Example: $9,999). See MEP Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

HEATING, VENTILATING AND AIR CONDITIONING

BASE BID NO. 4 Heating, Ventilating, Air Conditioning Work fully complete as per Bidding Documents, for the sum of

($_____)

Enter bid amount in numeric characters only *(Example: $9,999). See MEP Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

ELECTRICAL

BASE BID NO. 5 Electrical Work fully complete as per Bidding Documents for the sum of

($_____)

Enter bid amount in numeric characters only *(Example: $9,999). See MEP Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

COMBINED BASE BIDS OPTION

BASE BID NO. _____ for _____(Division of Work),
BASE BID NO. _____ for _____(Division of Work) and
BASE BID NO. _____ for _____(Division of Work) and
BASE BID NO. _____ for _____(Division of Work) Work fully complete as per specifications and related drawings, for the sum of

($_____)

Enter bid amount in numeric characters only *(Example: $9,999). See MEP Instructions to Bidders 'Article 16 Submission of Base Bids' for detailed instructions.*

COMMENCEMENT AND COMPLETION OF WORK

The undersigned agrees, if identified as the lowest qualified responsible certified bidder for the divisions(s) of work bid on, to enter into a subcontract with the General Prime Contractor.

ADDENDUM RECEIPT

We acknowledge receipt of the following Addenda:

Addendum No._____Date_____

Addendum No._____Date_____

Addendum No._____Date_____

Addendum No._____Date_____

PRIOR TO SIGNING, BIDDERS' ATTENTION IS DIRECTED TO MEP INSTRUCTIONS TO BIDDERS TO AVOID THE POSSIBILITY OF INVALIDATING THIS BID.

BY SIGNING THIS BID FORM, THE BIDDER ATTESTS TO PERSONAL KNOWLEDGE OF THE FOLLOWING:

1. Bidder is certified by DOA as a qualified and responsible bidder for the amount of the bid submitted, within the division(s) of work being bid.

2. Bidder agrees to enter into a subcontract with the General Prime Contractor in accordance with Wis. Stats. s. 16.855(14) and ARTICLE 9 of these Bidding Documents.

3. Bidder has examined the drawings and specifications, carefully prepared the bid form, and has reviewed all forms in detail before submitting bid; and bidder, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, bid rigging, bid rotation, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

4. That all work will be performed at the Bidder's own proper cost and expense, that the Bidder will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications, and at the time stated in the General Prime Contractor's Notice to Proceed.

_____
(Firm Name)

_____
(Bidder's Printed Name)

(Seal, if bid is by a corporation)

Date: _____ By _____
(Signature of Bidder)

[ ] Place an "X" in the box if Bidder is certified as a minority business enterprise or disabled veteran-owned business by the Wisconsin Supplier Diversity Program.

SECTION 02 32 00
GEOTECHNICAL INVESTIGATION
BASED ON DFD MASTER SPECIFICATION DATED 9/15/2025

PART 1 - GENERAL

SCOPE

This section details any subsurface investigations completed at the site as part of this project. This section may contain information applicable to ALL sitework and other technical specification sections. All Contractors are expected to review this information to familiarize themselves with the site.

Results of the geotechnical investigation apply only to the locations at which data was collected, at the specific time it was collected. Geotechnical conditions may differ elsewhere on the site. See pages 2-47 of this specification section.

RELATED WORK

Applicable provisions of Division 01 govern work under this Section.

02 05 00 – Common Work Results for Existing Conditions
30 05 00 – Common Work Results for All Exterior Work
31 10 00 – Site Clearing
31 20 00 – Earthmoving
31 22 16.15 – Roadway Subgrade Preparation
31 23 16.13 – Trenching
31 25 00 – Erosion Control

PART 2 - MATERIALS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

Geotechnical Engineering Exploration and Analysis

Proposed Baseball Field Redevelopment
UW-Oshkosh – Tiedmann Field
450 Josslyn Street
Oshkosh, Wisconsin

REVISED

Prepared for:

Rettler Corporation
Stevens Point, Wisconsin

July 9, 2024
Giles Project No. 1G-2405014-R

GILES
ENGINEERING ASSOCIATES, INC.

GILES
ENGINEERING ASSOCIATES, INC.
GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION MATERIALS CONSULTANTS

• Dallas, TX
• Los Angeles, CA
• Manassas, VA
• Milwaukee, WI

June 7, 2024
Revised July 9, 2024

Rettler Corporation
3317 Business Park Drive
Stevens Point, WI 54482

Attention: Mr. Chase Rettler

Subject: Geotechnical Engineering Exploration and Analysis
Proposed Baseball Field Redevelopment
UW-Oshkosh – Tiedmann Field
450 Josslyn Street
Oshkosh, Wisconsin
Giles Project No. 1G-2405014-R

Dear Mr. Rettler:

As requested, Giles Engineering Associates, Inc. conducted a *Geotechnical Engineering Exploration and Analysis* for the proposed project. The accompanying report describes the services that were performed, and it provides geotechnical-related findings, conclusions, and recommendations that were derived from those services.

We sincerely appreciate the opportunity to provide geotechnical services for the proposed project. Please contact the undersigned if there are questions about the report or if we may be of further service.

Very truly yours,

GILES ENGINEERING ASSOCIATES, INC.

Grace C. Hill
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1.0 SCOPE OF SERVICES

This report provides the results of the *Geotechnical Engineering Exploration and Analysis* that Giles Engineering Associates, Inc. ("Giles") conducted for the proposed project. The *Geotechnical Engineering Exploration and Analysis* included a geotechnical subsurface exploration program, geotechnical laboratory services, and geotechnical engineering. The scope of each service area was narrow and limited as directed by our client and based on our understanding and assumptions about the proposed project. Services are briefly described later. Environmental consulting was beyond Giles' authorized scope for this project.

Geotechnical-related recommendations are provided in this report for design and construction of the foundations for the proposed lighting and new synthetic turf. Site preparation recommendations are given but are only preliminary as the means and methods of site preparation will depend on factors that were unknown when this report was prepared. Those factors include, but are not limited to, the weather before and during construction, the actual subsurface conditions that are exposed during construction, and the finalized details of the proposed development.

2.0 SITE DESCRIPTION

The site for the baseball field redevelopment is in the southeast portion of the University of Wisconsin-Oshkosh Sports Complex, located at 450 Josslyn Street in Oshkosh, Wisconsin. The proposed redevelopment area is shown on the *Test Boring Location Plan*, included as Figure 1 in Appendix A. When the test borings (described later) were conducted, the site area was mostly occupied by the existing baseball diamond. Topographically, the site was relatively flat and level with elevations ranging between El. 757 and El. 754. In addition, an inlet of the Fox River was directly south of the site, with an approximate water level of about El. 748. Those elevations are referenced to topographic contour lines shown on the Winnebago County GIS Viewer, accessed online.

3.0 PROJECT DESCRIPTION

It is understood that the proposed improvements will consist of new light poles and installation of synthetic turf within the infield of the existing baseball diamond. It is assumed that the light poles will be metal pole-type structures that will be supported by drilled-shaft foundations. Maximum foundation loads for the proposed structures were not provided; therefore, the maximum foundation load is assumed to be 20,000 pounds.

The top-of-foundation elevations for the proposed structures were not provided to us. Therefore, this report assumes that the top-of-foundation elevations will be within two feet of the current site

grades. Because the top-of-foundation elevations were not provided, it is recommended that Giles review the finalized project plans before construction. Depending on that review, revision of this report might be necessary.

4.0 GEOTECHNICAL SUBSURFACE EXPLORATION PROGRAM

To explore subsurface conditions, eleven geotechnical test borings were conducted in the proposed stadium lighting and turf areas using a mechanical drill-rig. Test Boring 1 through 6 were in the proposed lighting areas and were advanced to ±16 feet below-ground. Test Boring 7 through 11 were in the proposed synthetic turf and fencing areas and were advanced to ±11 feet below-ground. The test borings were located, surveyed, and staked by Rettler Corporation. Approximate locations of the test borings are shown on the *Test Boring Location Plan*.

Samples were collected from each test boring, at certain depths, using the Standard Penetration Test (SPT), conducted with the drill rig. A brief description of the SPT is given in Appendix B along with descriptions of other field procedures. Immediately after sampling, select portions of the SPT samples were placed in containers that were labeled at the site for identification. A Standard Penetration Resistance value (N-value) was determined from each SPT. N-values are reported on the *Test Boring Logs* (in Appendix A), which are records of the test borings.

The boreholes were backfilled, but backfill materials will likely settle or heave, creating a hazard that can injure people and animals. Borehole areas should, therefore, be carefully and routinely monitored by the property owner or by others; settlement and heave of backfill materials should be repaired immediately. Giles will not monitor or repair boreholes.

Ground surface elevations at the test boring locations were surveyed by Rettler Corporation and provided to Giles. The test boring elevations are noted on the *Test Boring Logs* and *Soil and Site Evaluation – Storm* logs.

5.0 GEOTECHNICAL LABORATORY SERVICES

Samples that were retained from the test borings were transported to Giles' geotechnical laboratory where the samples were classified using the descriptive terms and particle-size criteria shown on the *General Notes* in Appendix D and by using the Unified Soil Classification System (ASTM D 2488) as a general guide. Classifications are shown on the *Test Boring Logs* along with horizontal lines that show estimated depths of material change. Field-related information pertaining to the test borings is also shown on the *Test Boring Logs*. For simplicity and abbreviation, terms and symbols are used on the *Test Boring Logs;* the terms and symbols are defined on the *General Notes*.

Soil samples that were retained from Test Borings 7 through 11 (conducted in and near the proposed synthetic turf areas) were also visually classified using the USDA textural classification system in general accordance with the guidelines provided in the Field Book for Describing and

Sampling Soils (USDA, Sept. 2012). USDA classifications of the retained samples are shown on the *Wisconsin DSPS Soil Evaluation – Storm* logs, enclosed in Appendix A. Supplemental information regarding soil classification, including the USDA and USCS soil classification systems, is included in the Soil Classification Notes enclosure within Appendix D.

Calibrated penetrometer resistance, unconfined compressive strength (without measured strain) and moisture content tests were performed on select SPT samples to evaluate their general engineering properties. Because SPT samples were used, which are categorized as being disturbed samples, results of the strength-related tests are considered to be approximate and were used as supplemental information. Test results are on the *Test Boring Logs*. Laboratory procedures are briefly described in Appendix C.

As part of the geotechnical laboratory services, SPT samples that were retained from each test boring were screened, in the laboratory, with a photoionization detector (PID) to check for volatile organic compound (VOC) vapors, such as vapors associated with gasoline. The results of the PID screening are reported as such on the *Test Boring Logs* and are summarized in Section 8.1 of this report. Because the PID results on the *Test Boring Logs* and discussed below are lab-screened values they might differ had the PID screening been done in the field at the time of sample collection.

6.0 MATERIAL CONDITIONS

Because material sampling at the test borings was discontinuous, it was necessary to estimate conditions between sample intervals. Estimated conditions at the test borings are briefly discussed in this section and are described in more detail on the *Test Boring Logs*. The conclusions and recommendations in this report are based only on the estimated conditions.

6.1. Surface Materials

Topsoil was at the ground surface at Test Boring 1, 3, 4, 5, 7, 9, 10, and 11, and was between ±3 and ±24 inches thick. Topsoil generally consisted of fine sand, sandy clay, and lean clay and included trace to little amounts of organic matter. A gravel, sand, and clay mix was at the surface of Test Borings 2, 6, and 8 and was between ±4 and ±9 inches thick.

6.2. Fill Materials

Material classified as fill was beneath the surface materials. The fill material was encountered to about ±9 to ±14 feet below-ground at the test borings but was encountered to the 11-foot termination depth at Test Borings 8 and 10. The fill material was variable and consisted of consisted of lean clay, sandy clay, sand (variable gradations), sandy gravel, and silty sand. Variable amounts of organic material was encountered throughout the fill. Fill classified as organic clay was also encountered between ±6½ and ±9 feet below-grade at Test Borings 10 and 11. Wood debris was encountered at Test Borings 1, 2, 4, 9, 10, and 11, glass debris was

encountered at Test Borings 3, 6, 7, 9, and 11, asphalt rubble was encountered at Test Boring 2, and rubber debris was encountered at Test Boring 7. Foundry fill material was encountered between about ±4 and ±8 feet below ground at Test Boring 8. Based on laboratory testing, the cohesive fill material exhibited medium stiff to very stiff comparative consistencies. Organic matter was encountered within the fill material at some of the test borings and the fill material exhibited highly variable moisture contents. Based on SPT N-values, the granular fill material exhibited very loose to firm relative densities. **Soil samples that were retained from Test Borings 2, 3, and 9 exhibited petroleum odors during laboratory classification.**

6.3. Native Soil

Organic Soil: At Test Boring 3, organic soil classified as amorphous peat was encountered between ±9 and ±11½ feet below-ground. At Test Boring 9, organic soil classified as organic clay with wood fragments was encountered at depths ranging between ±6½ to ±11 feet below-ground. The tested moisture content of the peat was 229 percent and the organic clay was 165 percent. The peat and organic clay exhibited very low strength characteristics and are considered to be highly compressible.

Non-Organic Native Soil: Non-organic native soil was below the materials described above and was encountered to the termination depth at the test boring, except at Test Borings 8, 9, and 10. In general, non-organic native soil consisted of lean clay. Based on laboratory testing, the cohesive native soil exhibited comparative consistencies of stiff to hard.

7.0 GROUNDWATER CONDITIONS

It is estimated that the water table was between El. 745 and El. 749 at the test boring locations when the test borings were conducted. That estimate is based on the moisture contents of retained soil samples, the organic soils encountered at some of the test borings, and the approximate water level of the nearby Fox River inlet (El. 748); however, the site appears to be subject to variable perched-groundwater conditions, where groundwater collects and flows above the water table, such as within the variable fill materials and above low permeable cohesive or dense and very dense granular native soil. Perched groundwater is expected to be variable in terms of area and depth, and could be significant, especially seasonally and with weather events.

Giles' estimate of the groundwater conditions is only an approximation; the water table could be higher than estimated and may fluctuate seasonally and with water level changes of the nearby Fox River inlet. If desired, groundwater observation wells could be installed and monitored at the site to more precisely determine the water table depth. Giles can install and monitor observations wells at the site, if requested.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1. Results of PID Screening

As part of the geotechnical laboratory services, SPT samples that were retained from each test boring were screened, in the laboratory, with a photoionization detector (PID) to check for volatile organic compound (VOC) vapors, such as vapors associated with gasoline. **Readings between 11 and 285 instrument units were measured when SPT samples retained from Test Borings 3, 8, 9, and 11 were screened with a PID.** Results of the PID screening conducted on retained samples from the test borings were *below detection limits* (BDL). The PID screening results are reported on the *Test Boring Logs*. Because the PID results on the *Test Boring Logs* are lab-screened values they might differ had the PID screening been done in the field immediately after sample recovery. **In addition to the apparent VOC vapors detected during PID screening, soil samples retained from Test Borings 2, 3, and 9 exhibited petroleum odors, as noted on the *Test Boring Logs*.**

8.2. Environmental Considerations

Based on the petroleum odors and PID results, discussed in Section 8.1, subsurface materials at the site appear to have been impacted by petroleum-related products. In addition, foundry fill material and debris were encountered in the test borings. Care must, therefore, be taken to protect workers and others during construction of the proposed development. Special safety methods and equipment might be necessary. Special handling and disposal of petroleum-impacted soil and groundwater, or of other foundry materials, should be expected.

8.3. Seismic Design Considerations

A soil Site Class D is recommended for seismic design. By definition, Site Class is based on the average properties of subsurface materials to 100 feet below-ground. Because 100-foot test borings were not requested or authorized, Site Class was estimated based on the test borings, presumed area geology, and the International Building Code.

8.4. Foundation Recommendations

As previously discussed, it is understood that stadium lights will be installed at or near the locations of Test Borings 1 through 6. Therefore, geotechnical parameters for drilled shaft design are given in the following Table 1. The parameters are intended to be used with the LPILE computer program and are generalized based on the test borings, as conditions were relatively similar between test borings. The recommended parameters assume that concrete for the drilled shafts will be in direct contact with the surrounding soil and that casing, if used, will be removed. The allowable unit side resistance values in the following table include a factor of safety of about 3.0. Design parameters for drilled shaft foundations were provided only to ±16 feet below-ground (termination depth of the shaft test borings); If longer drilled shaft foundations are necessary for

the proposed light poles, it is recommended that additional, deeper test borings be performed in order to provide deeper shaft design parameters.

TABLE 1: RECOMMENDED DRILLED SHAFT GEOTECHNICAL DESIGN PARAMETERS

Test Boring	Approximate Depth	Soil Type[2]	Soil Unit Weight	Soil Friction Angle	Soil Undrained Shear Strength	Allowable Unit Side Resistance	Lateral Soil Modulus (Cyclic)	ε_{50}
1, 2	0 to 4 feet	Sand/ Clay	125 pcf (moist)	Neglect due to seasonal changes including shrinkage and freeze-thaw				
	4 to 9 feet	Clay (Fill)	120 pcf (moist)	0º	2,000 psf	320 psf/ft	200 pci	0.007
	9 to 14 feet	Clay (Fill)	53 pcf (sub.)	0º	1,000 psf	200 psf/ft	100 pci	0.007
	14 to 16 feet	Clay	67 pcf (sub.)	0º	3,000 psf	550 psf/ft	400 pci	0.005
3	0 to 4 feet	Sand/ Clay	125 pcf (moist)	Neglect due to seasonal changes including shrinkage and freeze-thaw				
	4 to 9 feet	Clay (Fill)	120 pcf (moist)	0º	800 psf	150 psf/ft	100 pci	0.007
	9 to 11½ feet	Peat	20 pcf (sub.)	0º	100 psf	Neglect	15 pci	0.1
	11½ to 16 feet	Clay	67 pcf (sub.)	0º	3,500 psf	625 psf/ft	400 pci	0.005
4, 6	0 to 4 feet	Sand/ Clay	125 pcf (moist)	Neglect due to seasonal changes including shrinkage and freeze-thaw				
	4 to 9 feet	Sand (Fill)	120 pcf (moist)	28º	0 psf	65 psf/ft	25 pci	--
	9 to 11½ feet	Clay (Fill)	57 pcf (sub.)	0º	800 psf	150 psf/ft	100 pci	0.007
	11½ to 16 feet	Clay	57 pcf (sub.)	0º	2,500 psf	450 psf/ft	400 pci	0.005
5	0 to 4 feet	Sand/ Clay	125 pcf (moist)	Neglect due to seasonal changes including shrinkage and freeze-thaw				
	4 to 11½ feet	Clay (Fill)	120 pcf (moist)	0º	2,000 psf	320 psf/ft	200 pci	0.007
	11½ to 16 feet	Clay	57 pcf (sub.)	0º	3,000 psf	550 psf/ft	400 pci	0.005

1.) Depths are referenced to the surface grade at the test borings when drilled. Elevations are referenced to ground surface elevations at the test boring locations provided to Giles by Rettler Corporation.
2.) Generalized soil description for L-PILE V6.0 computer input, see *Test Boring Logs* for detailed soil descriptions.
3.) Estimated average values. Soil lateral resistance is recommended to be neglected to the frost depth (4 feet below surface grade) due to seasonal variations in soil strength.

Because sampling at the test borings was noncontinuous and due to the highly variable fill material which contained rubble and foundry material, it is critical that a geotechnical engineer observe the drilled shaft excavation procedures. The purpose of the recommended observation is to confirm that the support soils are similar to those encountered at the test borings, that the

recommended design parameters, provided in the above table, are representative of the actual subsurface conditions, and that the shafts are extend through existing fill and bearing in suitable native soil. Depending on the actual subsurface conditions within the shaft excavations, the drilled shafts might need to be wider or deeper than planned to adequately support the proposed stadium lights. Giles must be notified if the subsurface conditions within any drilled shaft excavation differs from the conditions shown on the *Test Boring Logs* so that this report can be revised, if needed. The proposed stadium lights could be improperly supported If a geotechnical engineer does not observe the drilled shaft excavations and confirm that design parameters, provided on the previous table, are appropriate for the conditions within the excavations.

Existing fill is unsuitable for drilled shaft foundation support. Drilled shaft foundations are recommended to extend through existing fill and bear within suitable-bearing native soil. Assuming that drilled shaft foundations will bear within native soils, a 9,000 pound per square foot (psf) maximum, net, allowable end-bearing capacity is recommended for drilled shaft foundation design. Drilled shafts are recommended to bear at least 15 feet below the ground surface and bear a minimum of 3 feet below the native soil interface. In addition, the recommended bearing capacity assumed that drilled shafts will be 2 to 4 feet in diameter. This bearing capacity is based on the results of field testing of the cohesive soils encountered between approximately 12 and 16 feet at each light pole foundation test boring. Design parameters for drilled shaft foundations were provided only to ±16 feet below-ground (termination depth of the shaft test borings); If longer drilled shaft foundations are necessary for the proposed light poles, it is recommended that additional, deeper test borings be performed in order to provide deeper shaft design parameters. Giles can perform additional test borings upon request. It is recommended that Giles review the final foundation plans to confirm that the recommended bearing capacity is appropriate based on the specified drilled-shaft diameters and depths.

The local building code requires a minimum 48-inch foundation-embedment depth. It is, therefore, recommended that caps and other components of each foundation extend at least 48 inches below the finished ground grade or to a depth required by the governing building code. Foundations and foundation elements must be protected against weather damage, both during and after construction.

General Drilled-Shaft Construction Recommendations

Concrete should consist of a Portland cement mixture with proper air-entrainment and with an appropriate water/cement ratio for proper strength and durability. Concrete may be placed by free-falling or by being pumped into the shaft excavations; however, the concrete slump and maximum aggregate size must be carefully selected so that the concrete will easily flow between reinforcing bars and will completely fills all voids. Also, care must be taken to keep concrete from contacting reinforcing cages during placement; otherwise, segregation of the concrete could occur. If the concrete mixture is too stiff, reinforcing cages may accidentally lift when casing, if used, is withdrawn. Concrete is recommended to be placed in accordance with "state-of-the-practice" procedures under engineering-controlled conditions.

It is recommended that the drilled shafts have a minimum diameter of 24 inches to help prevent arching and the development of voids in the concrete. Drilled shaft construction should be done in accordance with American Concrete Institute documents (ACI 336.1R-98 and ACI 336.3 R-93) and other pertinent requirements. Concrete should be placed in a shaft excavation immediately after drilling since a time delay could result in serious construction problems, such as softening and heaving at the base of the excavation. A clean-out bucket should be used to remove disturbed soil within the drilled shaft excavations.

Giles does not recommend downhole inspection of drilled shaft excavations. Even so, if downhole inspection is performed, care must be taken to ensure that each shaft excavation is fully cased and tested for possible accumulation of "bad air" or toxic gas before permitting an individual to proceed down the shaft excavation. Testing should continue while an individual occupies a shaft excavation. Dangerous gases may accumulate in a shaft excavation from internal combustion engines, such as pumps, air compressors, and vehicle traffic, or may be present within the subsoil.

It is recommended that a geotechnical engineer monitor the drilling operations to confirm that proper construction techniques are used, including the use of drilling fluid and casing. Strict safety precautions must be implemented and followed when near open excavations, such as a shaft excavation. An uncased shaft excavation must not be approached, as it could rapidly cave.

8.5. Generalized Construction Considerations

Adverse Weather

Site soil is sensitive to moisture and will become unstable when exposed to adverse weather, such as rain, snow, and freezing temperatures. Therefore, it might be necessary to remove or stabilize the upper 6 to 12 inches (or more) of soil due to adverse weather, which commonly occurs during late fall, winter, and early spring. At least some over-excavation or stabilization of unstable soil should be expected if construction is during or after adverse weather. Because site preparation is weather dependent, bids for site preparation and other earthwork activities should consider the time of year that construction will be conducted.

To protect soil from adverse weather, the site surface is recommended to be smoothly graded and contoured during construction to divert surface water away from construction areas. Contoured subgrades are recommended to be rolled with a smooth-drum compactor before precipitation to “seal” the surface. Furthermore, construction traffic should be restricted to certain aggregate-covered areas to control traffic-related soil disturbance. Foundation construction should begin immediately after suitable support is confirmed since weather can cause soil to become unstable.

Dewatering

Filtered sump pumps, drawing water from sump pits excavated in the bottom of construction trenches, are expected to be adequate to remove water that collects in shallow excavations. Excavated sump pits should be lined with geotextile and filled with open-graded, free-draining aggregate. Depending on conditions at the time of the construction and based on the significant perched groundwater table, multiple sump pumps may be needed to control water in excavations. It is recommended that a geotechnical engineer monitor and approve dewatering since improper dewatering could cause support-related problems at the site and at nearby properties.

Excavation Stability

Excavations are recommended to be made in accordance with current OSHA excavation and trench safety standards and other applicable requirements. Where required, sides of excavations must be sloped, benched, or braced to develop and maintain a safe work environment. Temporary shoring must be designed according to applicable regulatory requirements. Contractors are responsible for excavation safety.

Existing Utilities

All existing utilities are recommended to be identified and located and any planned to be maintained should be relocated outside the foundation areas. Utilities that are not reused should be capped-off and removed in accordance with local codes and ordinances. Excavations for the removal of utilities are recommended to be backfilled with engineered fill placed under engineering-controlled conditions. Grading operations must be done carefully so that existing utilities are not damaged or disturbed. Utility locations, elevations, and types should be checked relative to the planned construction to identify any concerns.

8.6. Recommended Construction Materials Testing Services

This report was prepared assuming that a geotechnical engineer will perform Construction Materials Testing (“CMT”) services during construction of the proposed development. Supplemental geotechnical recommendations might be needed based on the results of CMT services and specific details of the project not known at this time.

9.0 BASIS OF REPORT

This report is strictly based on the project description given in Section 3.0. Giles must be notified if the project description or our assumptions are not accurate so that this report can be amended, if needed. This report assumes that the facility will be designed and constructed according to the codes that govern construction at the site.

The conclusions and recommendations in this report are based on estimated subsurface conditions as shown on the *Test Boring Logs*. Giles must be notified if the subsurface conditions that are encountered during construction of the proposed development differ from those shown on the *Test Boring Logs*; revision of this report might be necessary. General comments and limitations of this report are given in the appendix.

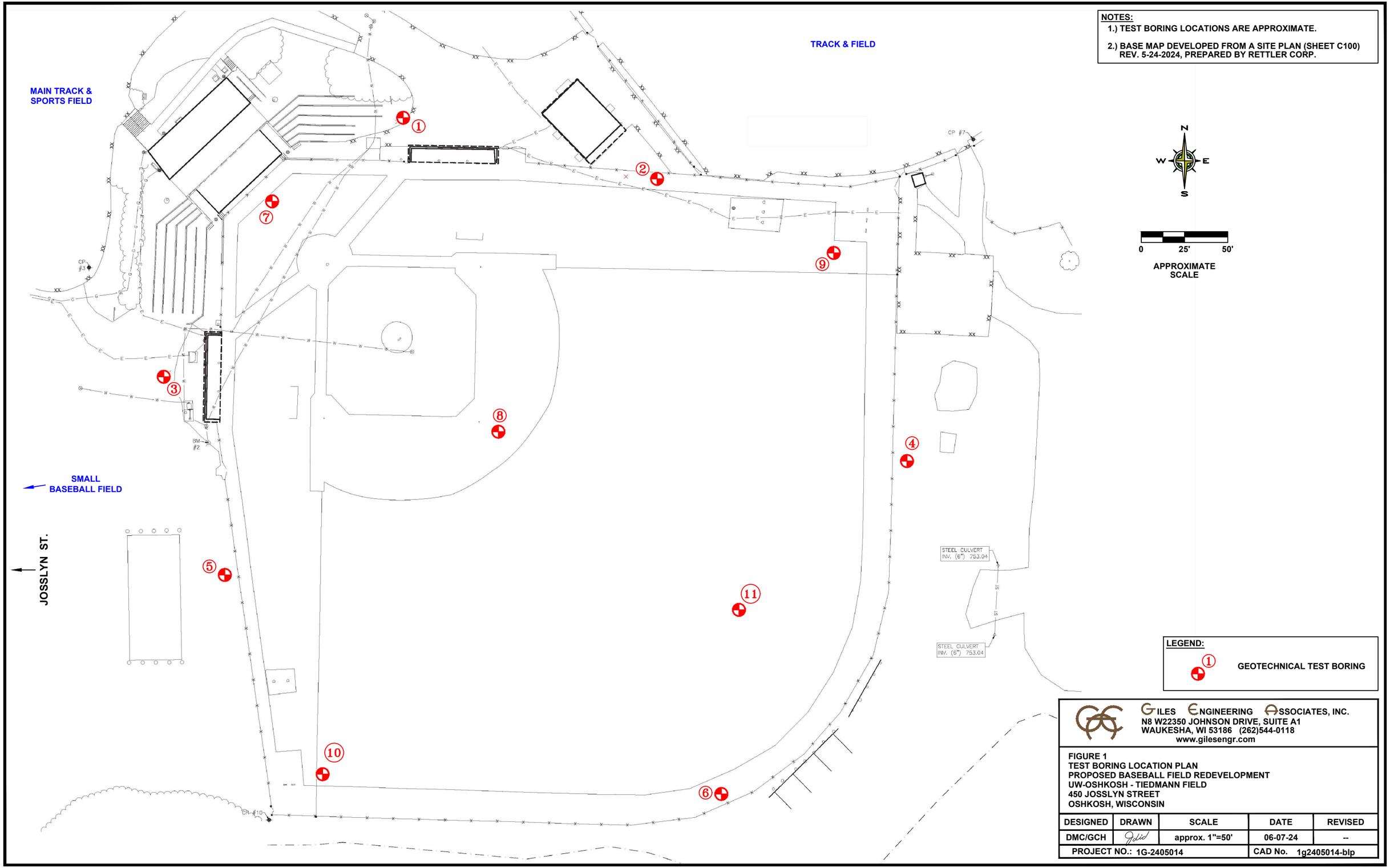
The conclusions and recommendations in this report have been promulgated in accordance with generally accepted professional engineering practices in the field of geotechnical engineering. No other warranty is either expressed or implied.

APPENDIX A

FIGURES AND TEST BORING LOGS

The Test Boring Location Plan contained herein was prepared based upon information supplied by *Giles'* client, or others, along with *Giles'* field measurements and observations. The diagram is presented for conceptual purposes only and is intended to assist the reader in report interpretation.

The Test Boring Logs and related information enclosed herein depict the subsurface (soil and water) conditions encountered at the specific boring locations on the date that the exploration was performed. Subsurface conditions may differ between boring locations and within areas of the site that were not explored with test borings. The subsurface conditions may also change at the boring locations over the passage of time.



NOTES:

1.) TEST BORING LOCATIONS ARE APPROXIMATE.

2.) BASE MAP DEVELOPED FROM A SITE PLAN (SHEET C100) REV. 5-24-2024, PREPARED BY RETTLER CORP.

LEGEND:

① GEOTECHNICAL TEST BORING

GILES ENGINEERING ASSOCIATES, INC.
N8 W22350 JOHNSON DRIVE, SUITE A1
WAUKESHA, WI 53186 (262)544-0118
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FIGURE 1
TEST BORING LOCATION PLAN
PROPOSED BASEBALL FIELD REDEVELOPMENT
UW-OSHKOSH - TIEDMANN FIELD
450 JOSSLYN STREET
OSHKOSH, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
DMC/GCH	GCH	approx. 1"=50'	06-07-24	--
PROJECT NO.: 1G-2405014			CAD No. 1g2405014-blp	

BORING NO. & LOCATION: 1	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 756.84 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±3" Topsoil: Dark Brown fine Sand, little Organic Matter-Moist			1-SS	7					BDL	
Fill: Dark Gray fine Sand, little Silt, trace Organic Matter-Moist		755								
Fill: Dark Brown lean Clay, little Sand, trace Gravel-Moist			2-SS	9	3.3	3.8		15	BDL	
Fill: Brown lean Clay, trace Sand and Gravel-Moist	5		3-SS	9		3.5		16	BDL	
Fill: Dark Gray Sandy Clay, trace Gravel (Includes Wood debris)-Moist		750	4-SS	8				14	BDL	
Fill: Gray lean Clay, little Organic Matter-Moist	10		5-SS	9		1.0		43	BDL	
		745								
			6-SS	10					BDL	(a)
Red-Brown lean Clay, trace Gravel-Moist	15		7-SS	14		3.5		20	BDL	(a)
Boring Terminated at about 16 feet (EL. 740.84')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Sample Recovery
Water Level At End of Drilling:	BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 2	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 756.04 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Red Sand and Clay-Moist **Fill:** Dark Gray lean Clay, trace Sand and Gravel-Moist		755	1-SS	11		3.8		20	BDL	
Fill: Brown lean Clay, trace Gravel-Moist			2-SS	10	1.8	2.0		18	BDL	
Fill: Dark Brown lean Clay, trace Sand-Moist	5		3-SS	9	4.1	4.3		22	BDL	
		750								
Fill: Dark Gray Sandy Clay, trace Gravel (Includes Asphalt rubble)-Wet			4-SS	4				20	BDL	Petroleum Odor
Fill: Dark Brown Sandy Clay, little Gravel (Includes Wood debris)-Wet	10		5-SS	6				29	BDL	
		745								
Fill: Gray lean Clay-Moist			6-SS	6	0.9	1.0		33	BDL	
Red-Brown lean Clay-Moist	15		7-SS	7		2.0		35	BDL	
Boring Terminated at about 16 feet (EL. 740.04')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 3	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 755.68 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±12" Topsoil: Dark Brown lean Clay, little Organic Matter, trace Sand and Gravel-Moist		755	1-SS	8		3.0		19	BDL	
Fill: Red-Brown lean Clay, trace Sand and Root Matter-Moist										
Fill: Red-Brown lean Clay, little Sand-Moist			2-SS	14	3.6	3.5		12	BDL	
Fill: Dark Gray Sandy Clay, trace Gravel-Moist	5	750	3-SS	9		1.3		25	BDL	Petroleum Odor
Fill: Dark Gray Sandy Clay, little Organic Matter (Includes Glass debris)-Moist			4-SS	5				38	BDL	
Black amorphous Peat-Moist	10	745	5-SS	6				229	BDL	
Red-Brown lean Clay-Moist			6-SS	9	3.7	3.8		28	BDL	
	15	740	7-SS	8					BDL	(a)
Boring Terminated at about 16 feet (EL. 739.68')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Sample Recovery
Water Level At End of Drilling:	BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 4	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 754.96 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±3" Topsoil: Dark Gray Sandy Clay, trace Organic Matter-Moist										
Fill: Brown Silty fine to medium Sand, trace Gravel-Moist			1-SS	7					BDL	
			2-SS	16					BDL	(a)
Fill: Dark Brown fine Sand, little Clay, trace Gravel (Includes Wood debris)-Moist	5	750	3-SS	6					BDL	
			4-SS	50/4"					BDL	(a)
Fill: Gray Sandy Clay, little Gravel, trace Organic Matter-Wet	10	745	5-SS	4					32	
Red-Brown lean Clay, trace Gravel-Moist			6-SS	15		2.5		18	BDL	
	15	740	7-SS	11				19	BDL	(a)
Boring Terminated at about 16 feet (EL. 738.96')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Sample Recovery
Water Level At End of Drilling:	BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 5	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 755.87 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±10" Topsoil: Dark Brown lean Clay, little Sand and Organic Matter-Moist		755	1-SS	9					BDL	
Fill: Brown Silty fine Sand, trace Gravel-Moist										
Fill: Brown Sandy Clay, little Gravel-Moist			2-SS	16		2.0		22	BDL	
Fill: Gray lean Clay, little Sand and Organic Matter-Moist	5	750	3-SS	8		2.3		18	138	
Fill: Brown Sandy Clay, trace Gravel-Moist			4-SS	9				28	BDL	(a)
Fill: Dark Brown lean Clay, trace Sand and Gravel-Moist	10	745	5-SS	9				43	BDL	(b)
Red-Brown mottled with Gray lean Clay, trace Sand-Moist			6-SS	5		2.0			BDL	
Red-Brown lean Clay-Moist	15	740	7-SS	8		3.5			BDL	
Boring Terminated at about 16 feet (EL. 739.87')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Sample Recovery
Water Level At End of Drilling:	(b) No SPT Recovery - Auger Sample Obtained
Cave Depth At End of Drilling:	BDL = Below Detection Limit
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 6	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 754.37 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±9" Red Gravel Sand Mix										
Fill: Brown lean Clay, little Sand and Gravel-Moist			1-SS	9		1.0		12	BDL	
Fill: Dark Gray fine to medium Sand, trace Gravel-Moist			2-SS	12					BDL	
		750								
Fill: Gray fine Sand, little Clay, trace Gravel-Moist	5		3-SS	4					BDL	
Fill: Dark Gray Sandy Clay, little Gravel (Includes Glass debris)-Very Moist			4-SS	4				30	BDL	
Fill: Gray lean Clay, trace Root Matter-Moist		745								
	10		5-SS	4		0.8		43	BDL	
Red-Brown lean Clay, trace Sand and Gravel-Moist			6-SS	14	5.6	4.5+		16	BDL	
		740								
	15		7-SS	12	1.7	2.0		23	BDL	
Boring Terminated at about 16 feet (EL. 738.37')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 7	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 755.64 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±8" Topsoil: Dark Brown lean Clay, trace Sand and Organic Matter-Moist		755	1-SS	7				24	BDL	
Fill: Dark Brown lean Clay, trace Root Matter-Moist			2-SS	8				20	BDL	(a)
	5		3-SS	9		1.5		27	BDL	
		750								
Fill: Dark Gray lean Clay, little Sand (Includes Rubber and Glass debris)-Moist			4-SS	8				42	BDL	
Gray lean Clay-Moist	10		5-SS	6		1.3		44	BDL	
		745								
Boring Terminated at about 11 feet (EL. 744.64')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Sample Recovery
Water Level At End of Drilling:	BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 8	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 756.99 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±5" Red Gravel Sand Mix										
Fill: Brown lean Clay, little Sand and Gravel-Moist			1-SS	7				16	BDL	
		755								
Fill: Dark Gray lean Clay, trace Sand and Gravel-Moist			2-SS	10		2.5		29	BDL	
Foundry Fill: Black fine Sand, little Silt, trace Gravel-Moist	5		3-SS	16					BDL	
		750								
			4-SS	8				48	BDL	
Fill: Dark Gray Silty fine Sand, little Clay, trace Gravel-Moist										
	10		5-SS	4				25	11	

Boring Terminated at about 11 feet (EL. 745.99')

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 9	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 755.28 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±6" Topsoil: Brown lean Clay, little Organic Matter-Moist		755								
Fill: Red-Brown lean Clay, trace Gravel-Moist			1-SS	8		2.8		22	BDL	
			2-SS	10		1.5		19	BDL	
Fill: Red-Brown lean Clay, little Sand, trace Gravel (Includes Glass and Wood debris)-Moist	5	750	3-SS	8		3.5		19	285	Strong Petroleum Odor
Fill: Red-Brown lean Clay, trace Root Matter (Includes Glass debris)-Moist			4-SS	6	1.1	1.5		19	14	
Dark Gray Organic Clay (Includes Wood fragments)-Moist	10	745	5-SS	7	0.6	0.8	1.5	165	BDL	
Boring Terminated at about 11 feet (EL. 744.28')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 10	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 754.61 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±10" Topsoil: Brown lean Clay, trace Organic Matter-Moist			1-SS	8		2.8		19	BDL	
Fill: Red-Brown lean Clay, trace Gravel-Moist										
Fill: Brown lean Clay, trace Sand-Moist			2-SS	8	3.5	3.8		23	BDL	
Fill: Red-Brown lean Clay, little Sand and Gravel-Moist	5	750	3-SS	11		2.8		27	BDL	
Fill: Dark Gray Organic Clay, little Sand and Gravel (Includes Wood debris)-Moist			4-SS	4				86	BDL	
Fill: Brown Sandy Gravel, little Clay-Wet	10	745	5-SS	4					BDL	
Boring Terminated at about 11 feet (EL. 743.61')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 11	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 755.32 feet	PROPOSED BASEBALL FIELD REDEVELOPMENT	
COMPLETION DATE: 05/23/24	UW-OSHKOSH - TIEDMANN FIELD 450 JOSSLYN STREET OSHKOSH, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-2405014	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±24" Topsoil: Dark Gray lean Clay, little Organic Matter, trace Sand and Gravel-Moist		755	1-SS	6		1.5		29	BDL	
Fill: Brown Silty fine to medium Sand, little Gravel-Moist			2-SS	13				17	BDL	
Fill: Dark Gray lean Clay, trace Sand and Organic Matter-Moist	5	750	3-SS	9		1.5		38	BDL	
Fill: Dark Brown Organic Clay, little Sand and Gravel (Includes Glass and Wood debris)-Wet			4-SS	4				113	17	
Red-Gray lean Clay, trace Sand-Moist	10	745	5-SS	4		1.5		40	BDL	
Boring Terminated at about 11 feet (EL. 744.32')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405014.GPJ GILES.GDT 6/7/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

1002-CPS-23
Division of Industry Services
P. O. Box 2658
Madison, Wisconsin 53701
Scott Walker, Governor
Laura Gutierrez, Secretary

Attachment 2:

SOIL AND SITE EVALUATION – STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM referenced to nearest road

Please print all information

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

County: Winnebago

Parcel I.D.:

Reviewed by:

Date:

Property Owner	Property Location
BOARD OF REGENTS UNIVERSITY OF WISCONSIN SYSTEM	Govt. Lot NW ¼ NW ¼ Section 23 T18N R16E

Property Owner' Mail Address	Lot #	Block #	Subd. Name or CSM #
PO BOX 2884			

City	State	Zip Code	Phone Number	x City	Village	Town	Nearest Road
Oshkosh	WI	54902-3454		Oshkosh, WI			Josslyn Street

Drainage area ____ sq. ft. ____ acres

Test site suitable for (check all that apply) [ ] Site not suitable:

[ ] Bioretention [ ] Subsurface Dispersal System:

[ ] Reuse: [ ] Irrigation: [ ] Other:

Hydraulic Application Test Method

[x] Morphological Evaluation

[ ] Double Ring Infiltrometer

[ ] Other: (specify)

Soil Moisture

Date of soil borings:

USDA-NRCS WETS Value:

[ ] Dry = 1;

[ ] Normal = 2;

[ ] Wet = 3

7 #OBS. [ ] Pit [x] Boring Ground surface elevation 755.64 ft. Elevation of limiting factor *746.6 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate inches/Hr
FILL	0-8	10YR 3/2	--	SiCL	1, F, SBK	M, FR	A – S	<5	90	--
FILL	8-78	10YR 3/3	--	SiCL	1, F, SBK	M, FR	C – W	<5	95	0.04
FILL	78-108	7.5YR 4/1	--	CL	MA	M, FR	C – W	<5	75	0.03
C	108-132	7.5YR 5/1	--	SiCL	MA	M, FI	--	<5	95	0.04

Comments: *Limiting factor based on depth of encountered gray native clay.

8 #OBS. [ ] Pit [x] Boring Ground surface elevation 756.99 ft. Elevation of limiting factor ____ ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate inches/Hr
FILL	0-5	10R 5/8	--	GrS	1, VF, SBK	M, FR	A – S	15	15	--
FILL	5-24	7.5YR 4/4	--	CL	1, F, ABK	M, FI	G – W	15	75	0.03
FILL	24-48	7.5YR 4/1	--	CL	1, F, GR	M, FI	C – W	10	80	0.03
FILL	48-108	7.5YR 2.5/1	--	SCL	MA	M, FI	C – W	10	15	0.11
FILL	108-132	7.5YR 3/1	--	SCL	MA	M, FI	--	10	20	0.11

Comments:

Name (Please Print)	Signature	Credential Number
Michelle L. Peed, P.G.		P.G. No. 1370-13
Address	**Date Evaluation Conducted**	**Telephone Number**
N8 W22350 Johnson Drive, Waukesha, WI	May 23, 2024	262-544-0118

9 #OBS. [ ] Pit [x] Boring Ground surface elevation 755.28 ft. Elevation of limiting factor *746.3 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate inches/Hr
FILL	0-6	10YR 3/2		CL	1, VF, SBK	M, FR	A – S	<5	30	--
FILL	6-48	5YR 4/3		SiCL	1, VF, ABK	M, FI	C – W	5	95	0.04
FILL	48-78	5YR 4/4		CL	1, VF, ABK	M, FI	C – W	5	80	0.03
FILL	78-108	5YR 4/4		CL	MA	M, FI	C – S	5	80	0.03
O	108-132	7.5YR 3/1		Org. CL	MA	M, FR	--	<5	95	0.03

Comments: *Limiting factor based on top of organic soils which is considered to be the apparent water table.

10 #OBS. [ ] Pit [x] Boring Ground surface elevation 754.61 ft. Elevation of limiting factor *748.1 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate inches/Hr
FILL	0-10	10YR 4/3		CL	1, VF, SBK	M, FR	A – S	<5	80	--
FILL	10-24	5YR 4/3		SiCL	1, VF, SBK	M, FI	G – W	5	90	0.04
FILL	24-48	7.5YR 4/3		SiCL	1, VF, SBK	M, FI	C – W	<5	90	0.04
FILL	48-78	5YR 4/3		CL	MA	M, FI	C – S	15	75	0.03
FILL	78-108	7.5YR 3/1		Org. CL	MA	M, FR	C – W	15	70	0.03
FILL	108-132	7.5YR 4/4		SGr	MA	M, FR	--	60	15	3.60

Comments: Water/wet soils encountered ±9 feet below-grade at the test boring
*Limiting factor based on top of organic soils which is considered to be the apparent water table.

11 #OBS. [ ] Pit [x] Boring Ground surface elevation 755.32 ft. Elevation of limiting factor *748.8 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate inches/Hr
FILL	0-24	7.5YR 3/1		CL	1, VF, SBK	M, FR	A – S	5	30	--
FILL	24-48	7.5YR 4/4		LS	1, VF, SBK	M, FI	G – W	15	20	0.50
FILL	48-78	7.5YR 4/1		SiCL	1, VF, SBK	M, FI	C – W	<5	90	0.04
FILL	78-108	7.5YR 3/2		Org. CL	MA	M, FR	C – W	15	65	0.03
C	108-132	5YR 4/2		SiCL	MA	M, FR	--	<5	95	0.04

Comments: Water/wet soils encountered ±6½ feet below-grade at the test boring.
*Limiting factor based on depth of encountered water/wet soils in the test boring.

APPENDIX B

FIELD PROCEDURES

The field operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) designation D

420 entitled “Standard Guide for Sampling Rock and Rock” and/or other relevant specifications. Soil samples were preserved and transported to *Giles'* laboratory in general accordance with the procedures recommended by ASTM designation D 4220 entitled “Standard Practice for Preserving and Transporting Soil Samples.” Brief descriptions of the sampling, testing and field procedures commonly performed by *Giles* are provided herein.

GENERAL FIELD PROCEDURES

Test Boring Elevations

The ground surface elevations reported on the Test Boring Logs are referenced to the assumed benchmark shown on the Boring Location Plan (Figure 1). Unless otherwise noted, the elevations were determined with a conventional hand-level and are accurate to within about 1 foot.

Test Boring Locations

The test borings were located on-site based on the existing site features and/or apparent property lines. Dimensions illustrating the approximate boring locations are reported on the Boring Location Plan (Figure 1).

Water Level Measurement

The water levels reported on the Test Boring Logs represent the depth of “free” water encountered during drilling and/or after the drilling tools were removed from the borehole. Water levels measured within a granular (sand and gravel) soil profile are typically indicative of the water table elevation. It is usually not possible to accurately identify the water table elevation with cohesive (clayey) soils, since the rate of seepage is slow. The water table elevation within cohesive soils must therefore be determined over a period of time with groundwater observation wells.

It must be recognized that the water table may fluctuate seasonally and during periods of heavy precipitation. Depending on the subsurface conditions, water may also become perched above the water table, especially during wet periods.

Borehole Backfilling Procedures

Each borehole was backfilled upon completion of the field operations. If potential contamination was encountered, and/or if required by state or local regulations, boreholes were backfilled with an “impervious” material (such as bentonite slurry). Borings that penetrated pavements, sidewalks, etc. were “capped” with Portland Cement concrete, asphaltic concrete, or a similar surface material. It must, however, be recognized that the backfill material may settle, and the surface cap may subside, over a period of time. Further backfilling and/or re-surfacing by *Giles’* client or the property owner may be required.

FIELD SAMPLING AND TESTING PROCEDURES

Auger Sampling (AU)

Soil samples are removed from the auger flights as an auger is withdrawn above the ground surface. Such samples are used to determine general soil types and identify approximate soil stratifications. Auger samples are highly disturbed and are therefore not typically used for geotechnical strength testing.

Split-Barrel Sampling (SS) – (ASTM D-1586)

A split-barrel sampler with a 2-inch outside diameter is driven into the subsoil with a 140-pound hammer free-falling a vertical distance of 30 inches. The summation of hammer-blows required to drive the sampler the final 12-inches of an 18-inch sample interval is defined as the "Standard Penetration Resistance" or N-value is an index of the relative density of granular soils and the comparative consistency of cohesive soils. A soil sample is collected from each SPT interval.

Shelby Tube Sampling (ST) – (ASTM D-1587)

A relatively undisturbed soil sample is collected by hydraulically advancing a thin-walled Shelby Tube sampler into a soil mass. Shelby Tubes have a sharp cutting edge and are commonly 2 to 5 inches in diameter.

Bulk Sample (BS)

A relatively large volume of soils is collected with a shovel or other manually-operated tool. The sample is typically transported to *Giles'* materials laboratory in a sealed bag or bucket.

Dynamic Cone Penetration Test (DC) – (ASTM STP 399)

This test is conducted by driving a 1.5-inch-diameter cone into the subsoil using a 15-pound steel ring (hammer), free-falling a vertical distance of 20 inches. The number of hammer-blows required to drive the cone 1¾ inches is an indication of the soil strength and density, and is defined as "N". The Dynamic Cone Penetration test is commonly conducted in hand auger borings, test pits and within excavated trenches.

- Continued -

Ring-Lined Barrel Sampling – (ASTM D 3550)

In this procedure, a ring-lined barrel sampler is used to collect soil samples for classification and laboratory testing. This method provides samples that fit directly into laboratory test instruments without additional handling/disturbance.

Sampling and Testing Procedures

The field testing and sampling operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the field testing (i.e. N-values) are reported on the Test Boring Logs. Explanations of the terms and symbols shown on the logs are provided on the appendix enclosure entitled “General Notes”.

APPENDIX C

LABORATORY TESTING AND CLASSIFICATION

The laboratory testing was conducted under the supervision of a geotechnical engineer in accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Brief descriptions of laboratory tests commonly performed by *Giles* are provided herein.

LABORATORY TESTING AND CLASSIFICATION

Photoionization Detector (PID)

In this procedure, soil samples are "scanned" in *Giles'* analytical laboratory using a Photoionization Detector (PID). The instrument is equipped with an 11.7 eV lamp calibrated to a Benzene Standard and is capable of detecting a minute concentration of **certain** Volatile Organic Compound (VOC) vapors, such as those commonly associated with petroleum products and some solvents. Results of the PID analysis are expressed in HNu (manufacturer's) units rather than actual concentration.

Moisture Content (w) (ASTM D 2216)

Moisture content is defined as the ratio of the weight of water contained within a soil sample to the weight of the dry solids within the sample. Moisture content is expressed as a percentage.

Unconfined Compressive Strength (qu) (ASTM D 2166)

An axial load is applied at a uniform rate to a cylindrical soil sample. The unconfined compressive strength is the maximum stress obtained or the stress when 15% axial strain is reached, whichever occurs first.

Calibrated Penetrometer Resistance (qp)

The small, cylindrical tip of a hand-held penetrometer is pressed into a soil sample to a prescribed depth to measure the soils capacity to resist penetration. This test is used to evaluate unconfined compressive strength.

Vane-Shear Strength (qs)

The blades of a vane are inserted into the flat surface of a soil sample and the vane is rotated until failure occurs. The maximum shear resistance measured immediately prior to failure is taken as the vane-shear strength.

Loss-on-Ignition (ASTM D 2974; Method C)

The Loss-on-Ignition (L.O.I.) test is used to determine the organic content of a soil sample. The procedure is conducted by heating a dry soil sample to 440°C in order to burn-off or "ash" organic matter present within the sample. The L.O.I. value is the ratio of the weight loss due to ignition compared to the initial weight of the dry sample. L.O.I. is expressed as a percentage.

Particle Size Distribution (ASTB D 421, D 422, and D 1140)

This test is performed to determine the distribution of specific particle sizes (diameters) within a soil sample. The distribution of coarse-grained soil particles (sand and gravel) is determined from a “sieve analysis,” which is conducted by passing the sample through a series of nested sieves. The distribution of fine-grained soil particles (silt and clay) is determined from a “hydrometer analysis” which is based on the sedimentation of particles suspended in water.

Consolidation Test (ASTM D 2435)

In this procedure, a series of cumulative vertical loads are applied to a small, laterally confined soil sample. During each load increment, vertical compression (consolidation) of the sample is measured over a period of time. Results of this test are used to estimate settlement and time rate of settlement.

Classification of Samples

Each soil sample was visually-manually classified, based on texture and plasticity, in general accordance with the Unified Soil Classification System (ASTM D-2488-75). The classifications are reported on the Test Boring Logs.

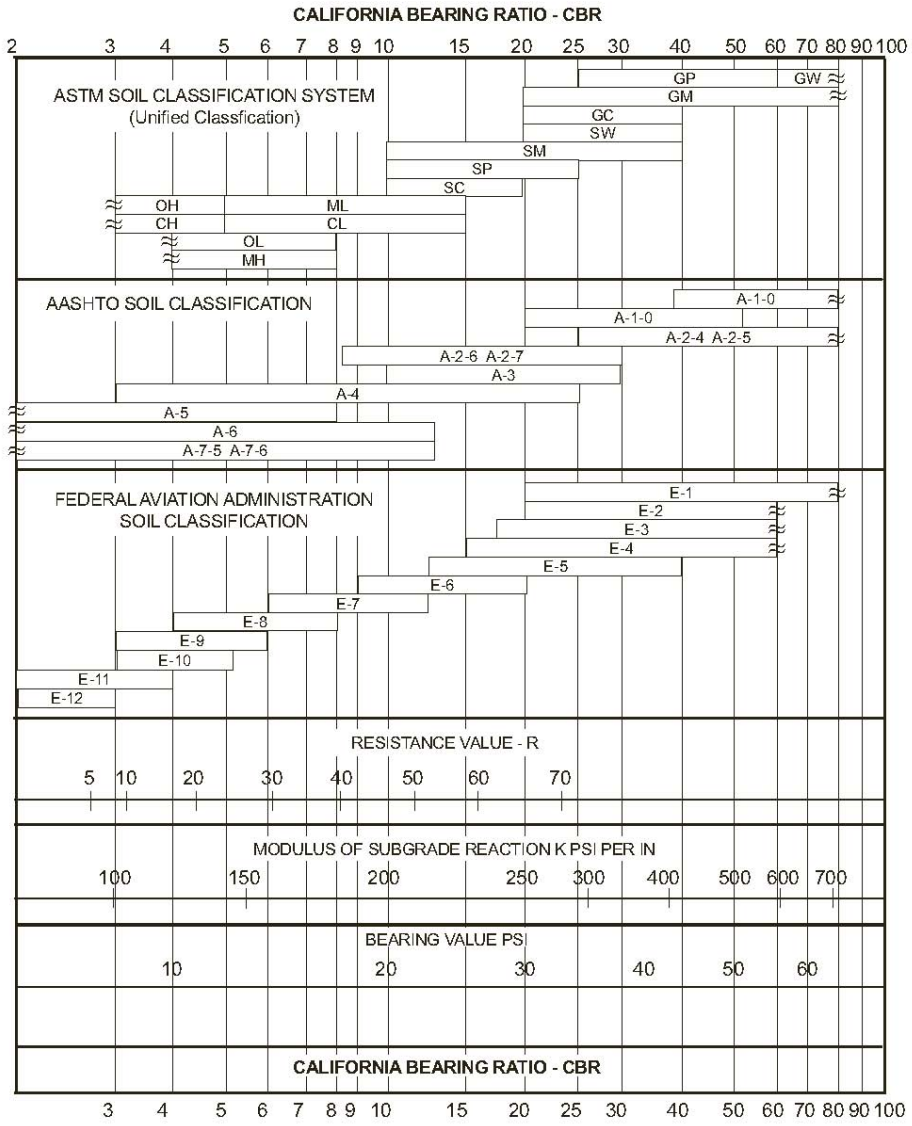
Laboratory Testing

The laboratory testing operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the laboratory tests are provided on the Test Boring Logs or other appendix enclosures. Explanation of the terms and symbols used on the logs is provided on the appendix enclosure entitled “General Notes.”

California Bearing Ratio (CBR) Test ASTM D-1833

The CBR test is used for evaluation of a soil subgrade for pavement design. The test consists of measuring the force required for a 3-square-inch cylindrical piston to penetrate 0.1 or 0.2 inch into a compacted soil sample. The result is expressed as a percent of force required to penetrate a standard compacted crushed stone.

Unless a CBR test has been specifically requested by the client, the CBR is estimated from published charts, based on soil classification and strength characteristics. A typical correlation chart is below.



APPENDIX D

GENERAL INFORMATION

AND
IMPORTANT INFORMATION ABOUT
THIS GEOTECHNICAL REPORT

GENERAL COMMENTS

The soil samples obtained during the subsurface exploration will be retained for a period of thirty days. If no instructions are received, they will be disposed of at that time.

This report has been prepared exclusively for the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. Copies of this report may be provided to contractor(s), with contract documents, to disclose information relative to this project. The report, however, has not been prepared to serve as the plans and specifications for actual construction without the appropriate interpretation by the project architect, structural engineer, and/or civil engineer. Reproduction and distribution of this report must be authorized by the client and *Giles*.

This report has been based on assumed conditions/characteristics of the proposed development where specific information was not available. It is recommended that the architect, civil engineer and structural engineer along with any other design professionals involved in this project carefully review these assumptions to ensure they are consistent with the actual planned development. When discrepancies exist, they should be brought to our attention to ensure they do not affect the conclusions and recommendations provided herein. The project plans and specifications may also be submitted to *Giles* for review to ensure that the geotechnical related conclusions and recommendations provided herein have been correctly interpreted.

The analysis of this site was based on a subsoil profile interpolated from a limited subsurface exploration. If the actual conditions encountered during construction vary from those indicated by the borings, *Giles* must be contacted immediately to determine if the conditions alter the recommendations contained herein.

The conclusions and recommendations presented in this report have been promulgated in accordance with generally accepted professional engineering practices in the field of geotechnical engineering. No other warranty is either expressed or implied.

GUIDE SPECIFICATIONS FOR SUBGRADE AND GRADE PREPARATION FOR FILL, FOUNDATION, FLOOR SLAB AND PAVEMENT SUPPORT; AND SELECTION, PLACEMENT AND COMPACTION OF FILL SOILS USING STANDARD PROCTOR PROCEDURES

1. Construction monitoring and testing of subgrades and grades for fill, foundation, floor slab and pavement; and fill selection, placement and compaction shall be performed by an experienced soils engineer and/or his representatives.

2. All compaction fill, subgrades and grades shall be (a) underlain by suitable bearing material; (b) free of all organic, frozen, or other deleterious material, and (c) observed, tested and approved by qualified engineering personnel representing an experienced soils engineer. Preparation of subgrades after stripping vegetation, organic or other unsuitable materials shall consist of (a) proof-rolling to detect soil, wet yielding soils or other unstable materials that must be undercut, (b) scarifying top 6 to 8 inches, (c) moisture conditioning the soils as required, and (d) recompaction to same minimum in-situ density required for similar materials indicated under Item 5. Note: compaction requirements for pavement subgrade are higher than other areas. Weather and construction equipment may damage compacted fill surface and reworking and retesting may be necessary to assure proper performance.

3. In overexcavation and fill areas, the compacted fill must extend (a) a minimum 1 foot lateral distance beyond the exterior edge of the foundation at bearing grade or pavement subgrade and down to compacted fill subgrade on a maximum 0.5(H):1(V) slope, (b) 1 foot above footing grade outside the building, and (c) to floor subgrade inside the building. Fill shall be placed and compacted on a 5(H):1(V) slope or must be stepped or benched as required to flatten if not specifically approved by qualified personnel under the direction of an experienced soil engineer.

4. The compacted fill materials shall be free of deleterious, organic, or frozen matter, shall contain no chemicals that may result in the material being classified as "contaminated", and shall be low-expansive with a maximum Liquid Limit (ASTM D-423) and Plasticity Index (ASTM D-424) of 30 and 15, respectively, unless specifically tested and found to have low expansive properties and approved by an experienced soils engineer. The top 12 inches of compacted fill should have a maximum 3-inch-particle diameter and all underlying compacted fill a maximum 6-inch-diameter unless specifically approved by an experienced soils engineer. All fill materials must be tested and approved under the direction of an experienced soils engineer prior to placement. If the fill is to provide non-frost susceptible characteristics, it must be classified as a clean GW, GP, SW or SP per the Unified Soil Classification System (ASTM D-2487).

5. For structural fill depths less than 20 feet, the density of the structural compacted fill and scarified subgrade and grades shall not be less than 95 percent of the maximum dry density as determined by Standard Proctor (ASTM-698) with the exception of the top 12 inches of pavement subgrade which shall have a minimum in-situ density of 100 percent of maximum dry density, or 5 percent higher than underlying fill materials. Where the structural fill depth is greater than 20 feet, the portions below 20 feet should have a minimum in-place density of 100 percent of its maximum dry density of 5 percent greater than the top 20 feet. The moisture content of cohesive soil shall not vary by more than -1 to +3 percent and granular soil ±3 percent of the optimum when placed and compacted or recompacted, unless specifically recommended/approved by the soils engineer monitoring the placement and compaction. Cohesive soils with moderate to high expansion potentials (PI>15) should, however, be placed, compacted and maintained prior to construction at a moisture content 3±1 percent above optimum moisture content to limit further heave. The fill shall be placed in layers with a maximum loose thickness of 8 inches for foundations and 10 inches for floor slabs and pavement, unless specifically approved by the soils engineer taking into consideration the type of materials and compaction equipment being used. The compaction equipment should consist of suitable mechanical equipment specifically designed for soil compaction. Bulldozers or similar tracked vehicles are typically not suitable for compaction.

6. Excavation, filling, subgrade and grade preparation shall be performed in a manner and sequence that will provide drainage at all times and proper control of erosion. Precipitation, springs and seepage water encountered shall be pumped or drained to provide a suitable working platform. Springs or water seepage encountered during grading/foundation construction must be called to the soil engineer's attention immediately for possible construction procedure revision or inclusion of an underdrain system.

7. Non-structural fill adjacent to structural fill should typically be placed in unison to provide lateral support. Backfill along walls must be placed and compacted with care to ensure excessive unbalanced lateral pressures do not develop. The type of fill material placed adjacent to below-grade walls (i.e. basement walls and retaining walls) must be properly tested and approved by an experienced soils engineer with consideration for the lateral pressure used in the wall design.

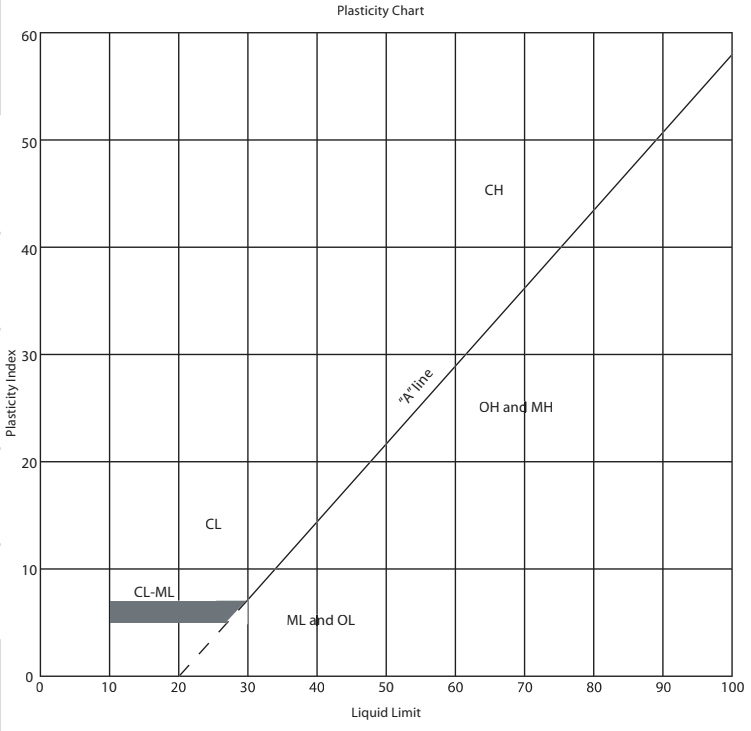
8. Whenever, in the opinion of the soils engineer or the Owner's Representatives, an unstable condition is being created either by cutting or filling, the work shall not proceed into that area until an appropriate geotechnical exploration and analysis has been performed and the grading plan revised, if found necessary.

CHARACTERISTICS AND RATINGS OF UNIFIED SOIL SYSTEM CLASSES FOR SOIL CONSTRUCTION *									
Class	**Compaction Characteristics**	**Max. Dry Density Standard Proctor (pcf)**	**Compressibility and Expansion**	**Drainage and Permeability**	**Value as an Embankment Material**	**Value as Subgrade When Not Subject to Frost**	**Value as Base Course**	**Value as Temporary Pavement**	
								With Dust Palliative	**With Bituminous Treatment**
GW	Good: tractor, rubber-tired, steel wheel or vibratory roller	125-135	Almost none	Good drainage, pervious	Very stable	Excellent	Good	Fair to poor	Excellent
GP	Good: tractor, rubber-tired, steel wheel or vibratory roller	115-125	Almost none	Good drainage, pervious	Reasonably stable	Excellent to good	Poor to fair	Poor	
GM	Good: rubber-tired or light sheepsfoot roller	120-135	Slight	Poor drainage, semipervious	Reasonably stable	Excellent to good	Fair to poor	Poor	Poor to fair
GC	Good to fair: rubber-tired or sheepsfoot roller	115-130	Slight	Poor drainage, impervious	Reasonably stable	Good	Good to fair **	Excellent	Excellent
SW	Good: tractor, rubber-tired or vibratory roller	110-130	Almost none	Good drainage, pervious	Very stable	Good	Fair to poor	Fair to poor	Good
SP	Good: tractor, rubber-tired or vibratory roller	100-120	Almost none	Good drainage, pervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SM	Good: rubber-tired or sheepsfoot roller	110-125	Slight	Poor drainage, impervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SC	Good to fair: rubber-tired or sheepsfoot roller	105-125	Slight to medium	Poor drainage, impervious	Reasonably stable	Good to fair	Fair to poor	Excellent	Excellent
ML	Good to poor: rubber-tired or sheepsfoot roller	95-120	Slight to medium	Poor drainage, impervious	Poor stability, high density required	Fair to poor	Not suitable	Poor	Poor
CL	Good to fair: sheepsfoot or rubber-tired roller	95-120	Medium	No drainage, impervious	Good stability	Fair to poor	Not suitable	Poor	Poor
OL	Fair to poor: sheepsfoot or rubber-tired roller	80-100	Medium to high	Poor drainage, impervious	Unstable, should not be used	Poor	Not suitable	Not suitable	Not suitable
MH	Fair to poor: sheepsfoot or rubber-tired roller	70-95	High	Poor drainage, impervious	Poor stability, should not be used	Poor	Not suitable	Very poor	Not suitable
CH	Fair to poor: sheepsfoot roller	80-105	Very high	No drainage, impervious	Fair stability, may soften on expansion	Poor to very poor	Not suitable	Very poor	Not suitable
OH	Fair to poor: sheepsfoot roller	65-100	High	No drainage, impervious	Unstable, should not be used	Very poor	Not suitable	Not suitable	Not suitable
Pt	Not suitable		Very high	Fair to poor drainage	Should not be used	Not suitable	Not suitable	Not suitable	Not suitable

* "The Unified Classification: Appendix A - Characteristics of Soil, Groups Pertaining to Roads and Airfields, and Appendix B - Characteristics of Soil Groups Pertaining to Embankments and Foundations," Technical Memorandum 357, U.S. Waterways Ixperiment Station, Vicksburg, 1953.

** Not suitable if subject to frost.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions			Group Symbols	Typical Names	Laboratory Classification Criteria	
Coarse-grained soils (more than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP; More than 12 percent: GM, GC, SM, SC; 5 to 12 percent: *Borderline* cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel-sand mixtrues, little or no fines		Not meeting all gradation requirements for GW
		Gravels with fines (appreciable amount of fines)	GM[a] d	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4 — Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			GM[a] u			
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line or P.I. greater than 7
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM[a] d	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4 — Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			SM[a] u			
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line or P.I. greater than 7
Fine-grained soils (More than half material is smaller than No. 200 sieve size)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays		
			OL	Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH	Inorganic clays of high plasticity, fat clays		
			OH	Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt	Peat and other highly organic soils		

[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits, suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u is used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group sympols. For example GW-GC, well-graded gravel-sand mixture with clay binder.

GENERAL NOTES

SAMPLE IDENTIFICATION

All samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D-2487-75 or D-2488-75)

DESCRIPTIVE TERM (% BY DRY WEIGHT)

Trace:	1-10%
Little:	11-20%
Some:	21-35%
And/Adjective	36-50%

PARTICLE SIZE (DIAMETER)

Boulders:	8 inch and larger
Cobbles:	3 inch to 8 inch
Gravel:	coarse - ¾ to 3 inch
	fine – No. 4 (4.76 mm) to ¾ inch
Sand:	coarse – No. 4 (4.76 mm) to No. 10 (2.0 mm)
	medium – No. 10 (2.0 mm) to No. 40 (0.42 mm)
	fine – No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt:	No. 200 (0.074 mm) and smaller (non-plastic)
Clay:	No 200 (0.074 mm) and smaller (plastic)

SOIL PROPERTY SYMBOLS

Dd:	Dry Density (pcf)
LL:	Liquid Limit, percent
PL:	Plastic Limit, percent
PI:	Plasticity Index (LL-PL)
LOI:	Loss on Ignition, percent
Gs:	Specific Gravity
K:	Coefficient of Permeability
w:	Moisture content, percent
qp:	Calibrated Penetrometer Resistance, tsf
qs:	Vane-Shear Strength, tsf
qu:	Unconfined Compressive Strength, tsf
qc:	Static Cone Penetrometer Resistance (correlated to Unconfined Compressive Strength, tsf)
PID:	Results of vapor analysis conducted on representative samples utilizing a Photoionization Detector calibrated to a benzene standard. Results expressed in HNU-Units. (BDL=Below Detection Limit)

DRILLING AND SAMPLING SYMBOLS

SS:	Split-Spoon
ST:	Shelby Tube – 3 inch O.D. (except where noted)
CS:	3 inch O.D. California Ring Sampler
DC:	Dynamic Cone Penetrometer per ASTM Special Technical Publication No. 399
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample
RB:	Rock-Roller Bit
BS:	Bulk Sample
Note:	Depth intervals for sampling shown on Record of Subsurface Exploration are not indicative of sample recovery, but position where sampling initiated

N: Penetration Resistance per 12 inch interval, or fraction thereof, for a standard 2 inch O.D. (1⅜ inch I.D.) split spoon sampler driven with a 140 pound weight free-falling 30 inches. Performed in general accordance with Standard Penetration Test Specifications (ASTM D-1586). N in blows per foot equals sum of N-Values where plus sign (+) is shown.

Nc: Penetration Resistance per 1¾ inches of Dynamic Cone Penetrometer. Approximately equivalent to Standard Penetration Test N-Value in blows per foot.

Nr: Penetration Resistance per 12 inch interval, or fraction thereof, for California Ring Sampler driven with a 140 pound weight free-falling 30 inches per ASTM D-3550. Not equivalent to Standard Penetration Test N-Value.

SOIL STRENGTH CHARACTERISTICS

COHESIVE (CLAYEY) SOILS

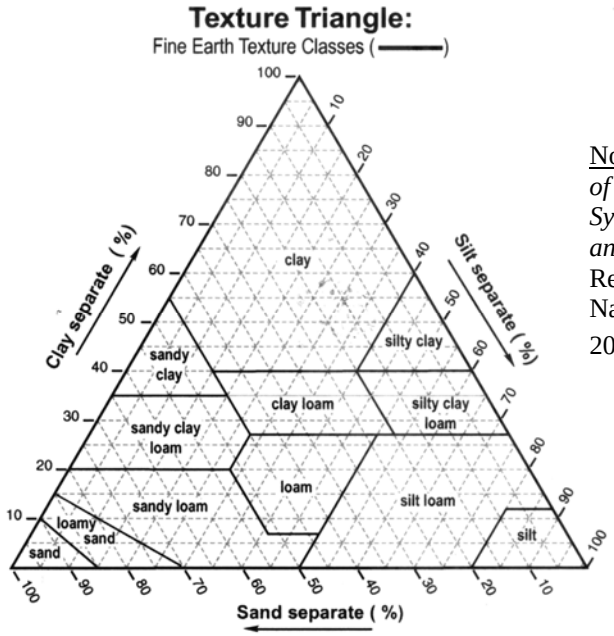
COMPARATIVE CONSISTENCY	BLOWS PER FOOT (N)	UNCONFINED COMPRESSIVE STRENGTH (TSF)
Very Soft	0 - 2	0 - 0.25
Soft	3 - 4	0.25 - 0.50
Medium Stiff	5 – 8	0.50 - 1.00
Stiff	9 – 15	1.00 - 2.00
Very Stiff	16 – 30	2.00 - 4.00
Hard	31+	4.00+

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT (N)
Very Loose	0 - 4
Loose	5 - 10
Firm	11 - 30
Dense	31 - 50
Very Dense	51+

DEGREE OF PLASTICITY	PI	DEGREE OF EXPANSIVE POTENTIAL	PI
None to Slight	0 - 4	Low	0 - 15
Slight	5 - 10	Medium	15 - 25
Medium	11 - 30	High	25+
High to Very High	31+		

SOIL CLASSIFICATION NOTES



Note: *Texture Triangle* and *Comparison of Particle Size Classes in Different Systems* from *Field Book for Describing and Sampling Soil*, USDA Natural Resources Conservation Service National Soil Survey Center (September 2002).

Comparison of Particle Size Classes in Different Systems

	FINE EARTH									ROCK FRAGMENTS					
										channers			flagst.	stones	boulders
USDA [1]	Clay [2]		Silt		Sand					Gravel			Cobbles	Stones	Boulders
	fine	co.	fine	co.	v.fi.	fi.	med.	co.	v. co.	fine	medium	coarse			
millimeters:	0.0002	.002 mm		.02	.05	.1	.25	.5	1	2 mm	5	20	76	250	600 mm
U.S. Standard Sieve No. *(opening)*:					300 [3]	140	60	35	18	10	4	*(3/4")*	*(3")*	*(10")*	*(25")*

International [4]	Clay	Silt	Sand		Gravel	Stones
			fine	coarse		
millimeters:	.002 mm	.02	.20		2 mm	20 mm
U.S. Standard Sieve No. *(opening)*:					10	*(3/4")*

Unified [5]	Silt or Clay	Sand			Gravel		Cobbles	Boulders
		fine	medium	co.	fine	coarse		
millimeters:	.074	.42	2 mm	4.8	19	76	300 mm	
U.S. Standard Sieve No. *(opening)*:	200	40	10	4	*(3/4")*	*(3")*		

AASHTO [6,7]	Clay	Silt	Sand		Gravel or Stones			Broken Rock (angular), or Boulders (rounded)
			fine	coarse	fine	med.	co.	
millimeters:	.005 mm	.074	.42	2 mm	9.5	25	75 mm	
U.S. Standard Sieve No.:		200	40	10	*(3/8")*	*(1")*	*(3")*	

phi #:	12	10	9	8	7	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-12
Modified Wentworth [8]	clay			silt				sand					pebbles					Cobbles		boulders			
millimeters:	.002	.004	.008	.016	.031	.062	.125	.25	.5	1	2 mm	8	16	32	64	256	4092 mm						
U.S. Standard Sieve No.:						230	120	60	35	18	10	5											

1. Soil Survey Staff. 1995. Soil survey Laboratory information manual. USDA, Natural Resources Conservation Service, Soil Survey Investigations Report No. 45, Version 1.0, National Soil Survey Center, Lincoln, NE. 305 p.
2. Soil Survey Staff. 1995. Soil Survey Lab information manual. USDA-NRCS, Soil Survey Investigation Report #45, version 1.0, National Soil Survey Center, Lincoln, NE. Note: Mineralogy studies may subdivide clay into three size ranges; fine (<0.08µm), medium (0.08-0.2µm), and coarse (0.2-2µm); Jackson, 1969.
3. The Soil Survey Lab (Lincoln, NE) uses a no. 300 sieve (0.047 mm opening) for the USDA-sand/silt measurement. A no. 270 sieve (0.053 mm opening) is more readily available and widely used.
4. International Soil Science Society. 1951. *In*: Soil Survey Manual. Soil Survey Staff, USDA-Soil Conservation Service, Agricultural Handbook No. 18, U.S. Gov. Print. Office, Washington, D.C. 214 p.
5. ASTM. 1993. Standard classification of soils for engineering purposes (Unified Soil Classification System). ASTM designation D2487-92. *In*: Soil and rock; dimension stone; geosynthetics. Annual book of ASTM standards-Vol. 04.08.
6. AASHTO. 1986a. Recommended practice for the classification of soils and soil-aggregate mixtures for highway construction purposes. AASHTO designation M145-82. *In*: Standard specifications for transportation materials and methods of sampling and testing; Part 1: Specifications (14th ed.). American Association of State Highway and Transportation Officials, Washington, D.C.
7. AASHTO. 1986b. Standard definitions of terms relating to subgrade, soil-aggregate, and fill materials. AASHTO designation M146-70 (1980). *In*: sampling and testing; Part 1: Specifications (14th ed.). American Association of State Highway and Transportation Officials, Washington, D.C.
8. Ingram, R.L. 1982. Modified Wentworth scale. *In*: Grain-size scales. AGI Date Sheet 29.1. *In*: Dutro, J.T., Dietrich, R.V., and Foose, R.M. 1989. AGI data sheets for geology in the field, laboratory, and office, 3rd edition. American Geological Institute, Washington, D.C.

GILES ENGINEERING ASSOCIATES, INC.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

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