PROJECT MANUAL

Construction Documents

DIVISIONS 0 thru 1

NOTTAWASEPPI HURON BAND of the POTAWATOMI

WIDOKTADWEN PROJECTS

New Government Center – Bid Package #1

The SKILLMAN Corporation
Project Administration
Construction Management

WIGHTMAN & ASSOCIATES, INC.
ENGINEERING • SURVEYING • ARCHITECTURE

2303 Pipestone Road
Benton Harbor, MI 49022
(269) 927-0100

9835 Portage Road
Portage, MI 49002
(269) 327-3532

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Nottawaseppi Huron Band
of the Potawatomi
A Federally Recognized Tribal Government

PROJECT NO. 211130
Volume 1 of 2
May 25, 2012 (ADD #1 June 6, 2012)

PROJECT MANUAL

Construction Documents

DIVISIONS 2 thru 33

NOTTAWASEPPI HURON BAND of the POTAWATOMI

WIDOKTADWEN PROJECTS
New Government Center – Bid Package #1

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PROJECT NO. 211130
Volume 2 of 2
May 25, 2012 (ADD #1 June 6, 2012)

ADDENDUM NO. 1

June 6, 2012

Nottawasepi Huron Band of the Potawatomi
Widoktadwen Projects – New Government Center
Bid Package #1
1474 Mno-Bmadzewen Way
Fulton, MI 49052

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications dated May 25, 2012 and the Drawings dated May 30, 2012, by The Skillman Corporation and Wightman & Associates, Inc., the Construction Management / Architectural Engineering Team. Acknowledge receipt of the Addendum in the space provided on the Proposal Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1 through ADD 1-3 and attached Wightman & Associates Inc. Addendum and Clarification No.1 dated June 6, 2012 consisting of two pages.

Be advised the bid due date and opening date has changed to Tuesday June 19th, in lieu of the formerly scheduled Thursday June 14th. Time and location still apply.

A. <u>COVER PAGE – BOOK 1 & 2</u>

1. Reissued.

B. <u>SPECIFICATION SECTION 00 00 20 – TABLE OF CONTENTS</u>

1. Delete specification:

Section	03 53 00 Concrete Topping
Section	05 40 00 Cold Formed Metal Framing
Section	26 05 00 Common Work Results for Electrical

Section 26 05 26 Grounding and Bonding for Electrical Systems
Section 26 05 33 Raceways and Boxes For Electrical Systems

2. Add specification:
Section 00 02 00 Notice to Bidders

C. SPECIFICATION SECTION 00 02 00 – NOTICE TO BIDDERS

1. Add.

D. SPECIFICATION SECTION 00 10 00 – INSTRUCTIONS TO BIDDERS

1. Section 1.10 BIDDING PROCEDURES, Paragraph A, change "the bid package (scope)" to read "the bid category (scope)"."

2. Section 1.16 TIME OF COMMENCEMENT AND COMPLETION, Item A.2. "Construction shall be complete within 263 consecutive days. . ." in lieu of 130 days.

3. Add Section 1.20 ALTERNATIVES as follows:

"**1.20 ALTERNATIVES**

A. Requested alternatives are listed on the Bid Proposal Form and are described in detail under Section 01 23 00 - Alternates, Division 1 - General Requirements. They must be bid with base bid. NOTE: The terms "alternate" and "alternative" are used interchangeably to have the same meaning in this Project Manual and on the Drawings.

B. The cost of each alternate shall include omissions, additions, and adjustments of trades as may be necessary because of each change, substitution, addition, or omission.

C. Each Bidder shall be responsible for bidding alternates which affect the Work of the base bid provided, regardless of whether listed or not listed on the Bid Proposal Form. If an applicable alternate(s) is not listed on the Bid Proposal Form, the Bidder shall submit on company letterhead the cost of said alternate(s). No additional costs will be allowed after signing the Contract for failure to bid applicable alternates.

D. The Owner retains the right to include or exclude work required by Alternates, for the sums established exercisable within one hundred twenty (120) days from and including the date of signing the Contract."

E. SPECIFICATION SECTION 00 20 00 - INFORMATION AVAILABLE TO BIDDERS

1. Reissued.

F. SPECIFICATION SECTION 00 31 00 – BID FORM

1. Replace pages (1) and (2) with the attached pages.

G. SPECIFICATION SECTION 00 70 00 – GENERAL CONDITIONS

1. Delete page 2.

H. SPECIFICATION SECTION 00 83 00 – DAVIS BACON WAGES

1. Delete Page 33 – 61 of Davis Bacon wages.

I. SPECIFICATION SECTION 01 12 00 – MULTIPLE CONTRACT SUMMARY

1. Reissued.

J. SPECIFICATION SECTION 01 21 00 - ALLOWANCES

1. Reissued.

K. SPECIFICATION SECTION 01 23 00 - ALTERNATES

1. Issued.

L. SPECIFICATION SECTION 01 28 00 – SCHEDULE OF VALUES

1. Clarification: The terms "Architect" and "Construction Manager" shall be replaced with "Construction Management / Architectural Engineering Team".

M. SPECIFICATION SECTION 01 31 00 – PROJECT MEETINGS

1. Reissued.

N. SPECIFICATION SECTION 01 51 10 – TEMPORARY ELECTRICITY, LIGHTING AND WARNING SYSTEMS

1. Reissued.

O. SPECIFICATION SECTION 01 55 00 – ACCESS ROADS AND PARKING AREAS

1. Section 1.01 RELATED DOCUMENTS – Paragraph B, change "See Allowance Section 01 21 00." to read "See Allowance Section 01 21 00 and Multiple Contract Summary Section 01 12 00."

P. SPECIFICATION SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

1. Section 3.01 PLAN IMPLEMENTATION – Insert the following:

"F. Waste Management Provider: Engage the company *Waste Management* to provide dumpsters, disposal, and materials and LEED tracking."

END ADDENDUM NO.1

ADDENDUM AND CLARIFICATION NO. 1

2012 WIDOKTADWEN PROJECT
GOVERNMENT CENTER
BID PACKAGE NO. 1

June 6, 2012

The following clarification and changes shall be included in the Plans and Specifications for the above referenced project, as prepared by Wightman & Associates, Inc. dated May 30, 2012.

CLARIFICATIONS

1. Bid Package No. 1 does not require electrical work by any of the trades. Electrical panels and devices are shown for the purpose of coordination.

2. Sheet S5-502 Metal stud wall, natural stone, and brick ties is not in this contract.

3. Architectural sheets A5-103, A5-200, A5-201, and A5-300 are provided for reference only.

4. Interior rigid insulation and drywall shown on basement walls and sections is not in this project scope.

5. Specification Section 05 50 00 Metal Fabrications provided.

SPECIFICATIONS

1. Section 02 40 00 Demolition: Under 3.2 SCHEDULE, delete items "B." and "C." and respective items listed.

2. Delete Section 03 53 00 Concrete Topping.]

3. Section 05 12 00 Structural Steel Framing; 2.1 Materials; A. Steel Materials: Under Item 2 add Bearing Plates. A36 Grade steel.

4. Delete Section 05 40 00 Cold Formed Metal Framing. Light gauge framing and roof trusses will be part of Bid Package No. 2

5. Delete all of the Division 26 Sections:
   Section 26 05 00 Common Work Results For Electrical
   Section 26 05 26 Grounding and Bonding For Electrical Systems
   Section 26 05 33 Raceways and Boxes For Electrical Systems

DRAWINGS

1. Sheet C5-200 Site Plan – Utility and Dimensional; Delete drive and note "Remove existing gravel drive and temporary construction road prior to final grading."

2. Sheet S5-100 Foundation Plan; Revise Section Tag through porch wall from Q/S5-501 to Q/S5-502.

3. Sheet S5-100 Foundation Plan;
   a. Revise Section Tag through porch wall from Q/S5-501 to Q/S5-502.
   b. Revise Section Tags at Utility Lot retaining wall (right side of sheet) from O/S5-501 to O/S5-502.

4. Sheet S5-110 1st Floor Framing Plan; 1st Floor Framing Plan: Delete Column CE4.7. It is located on Column Line 7 between Lines F and E.

5. Sheet S5-502 Foundation Details; Section O: Revise brick ledge from 6" to 4" and the supporting concrete wall from 6" to 8". The overall width of the foundation wall shall remain 12".

6. Sheet A5-310 Wall Sections; Wall Section 1/A5-310: Add the following elevations to the below grade drains:
    a. Footing Drain = -12'-4"/880.17
    b. Underdrain (below slab) = -12'-0"/880.50

** END OF ADDENDUM NO. 1 **

SECTION 00 02 00 - NOTICE TO BIDDERS

NOTICE TO BIDDERS

Notice is hereby given that sealed bids will be received:

By: Nottawaseppi Huron Band of the Potawatomi
2221 1 ½ Mile Road
Fulton, MI 49052

For: New Government Center Bid Package #1
2221 1 ½ Mile Road
Fulton, MI 49052

At: Nottawaseppi Huron Band of the Potawatomi
Administration Building
2221 1 ½ Mile Road
Fulton, MI 49052

Until: 2:00 pm (local time), June 19, 2012

Bids must be submitted in a sealed envelope or package clearly marked as containing a bid, indicating the Project Name, the Bidder's name, the bid category (scope), the time and date of bid opening, Owner's address, and where bids are to be delivered.

Bid Opening: Bids will be publicly opened and read aloud at approximately 2:15 pm (local time), in the NHBP Community Center, June 19, 2012.

All work for the complete construction of the Project will be under one or more prime contracts with the Owner based on bids received and on combinations awarded. The Construction Manager/AE team will manage the construction of the Project.

Construction shall be in full accordance with the Bidding Documents, which are on file with the Owner and may be examined by prospective bidders at the following locations:

Office of the Construction Manager
The Skillman Corporation
8120 Moorsbridge Rd. Ste. 101
Portage, MI 49024

Office of the Architect
Wightman & Associates, Inc.
2303 Pipestone Rd.
Benton Harbor, MI 49022

Office of the Owner
Nottawaseppi Huron Band of the Potawatomi
Administration Building
2221 1 ½ Mile Rd.
Fulton, MI 49052

Builders Exchange of Grand Rapids
4461 Cascade Road, SE
Grand Rapids, MI 49546

Builders Exchange of Kalamazoo
3431 E. Kilgore Road
Kalamazoo, MI 49001

Builders Exchange of Lansing
1240 East Saginaw Street
Lansing, MI 48906

MACIAF Planroom
3215-A Sugar Maple Ct.
South Bend, IN 46628

Construction Association of Michigan
43636 Woodward Avenue.
Bloomfield Hills, MI 48302

The Blue Book Building & Construction Network
www.thebluebook.com

Kal-Blue
914 E. Vine Street
Kalamazoo, MI 49001

Prime and Non-Prime Contract Bidders must place your order to be able to download documents electronically or request printed documents at **www.skillmanplanroom.com**. There is no cost for downloading the bidding documents. Bidders desiring printed documents shall pay for the cost of printing, shipping and handling. Reprographic Services shall be provided by:

Kal-Blue, 914 East Vine Street, Kalamazoo, MI 49001 Phone 269-349-8681

DAVIS BACON WAGES: Rates as posted by the United States Department of Labor Wage and Hour Division will be part of these contract documents.

A Pre-Bid Conference will be held May 31, 2012 at 9:00 a.m. local time, at the Nottawaseppi Huron Band of the Potawatomi Community Center, 2221 1 ½ Mile Rd., Fulton, MI 49052. Attendance by bidders is optional, but recommended, in order to clarify or answer questions concerning the Drawings and Project Manual for the Project.

Bid security in the amount of five percent (5%) of the Bid must accompany each Bid in accordance with the Instructions to Bidders.

The successful Bidders will be required to furnish Performance and Payment Bonds for one hundred percent (100%) of their Contract amount prior to execution of Contracts.

Contractors submitting bids for the performance of any Work as specified in this building Project should make such Bids to Nottawaseppi Huron Band of the Potawatomi. Contractors are advised that the Contract as finally entered into with any successful Bidder will be with the Owner.

The Owner reserves the right to accept or reject any Bid (or combination of Bids) and to waive any irregularities in bidding. All Bids may be held for a period not to exceed **90** days before awarding contracts.

Nottawaseppi Huron Band of the Potawatomi
By: Dan Green

END OF SECTION 00 02 00

SECTION 00 20 00 - INFORMATION AVAILABLE TO BIDDERS

A. Subsurface Investigation Information: The Soils Exploration Report and Soil Boring Logs were prepared for the Owner by **Soil and Materials Engineers, Inc., 4460 Commercial Avenue, Suite B, Kalamazoo, MI 49402-9750, (269)323-3555** for use in design. The following Subsurface Investigation Report is not a part of the construction Contract Documents and is enclosed within this document for informational use only. The Construction Management / Architectural Engineering Team do not accept responsibility for the information contained in the report.

1. The enclosed report and Log of Borings, and any interpolations of conditions between test borings is not a warrant or guarantee by the Owner or Construction Management / Architectural Engineering Team of subsurface conditions.
2. The Contractor should visit the site and acquaint oneself with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to the site and subsurface conditions, but such subsurface investigations shall be performed only under the time schedules and arrangements approved in advance by the Owner via the Construction Management / Architectural Engineering Team. Any additional information, needed by the Contractor, shall be obtained by the Contractor at no cost to the Owner.
3. Structural design has been based on the report and assumes that existing soils are clean, can be compacted and will achieve the densities specified in the earthwork section. It shall be the Contractor's responsibility to determine for oneself existing Site and or soil conditions.

B. Existing Site Survey Information: A Site survey can be found within the construction drawings. It is not however, part of the Construction Contract Documents and is for informational use only. Information found is not a warrant or guarantee by the Owner or Project Consultant.

1. The Contractor should visit the site and acquaint oneself with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to the site and subsurface conditions, but such subsurface investigations shall be performed only under the time schedules and arrangements approved in advance by the Owner via the Construction Management / Architectural Engineering Team. Any additional information needed by the Contractor, shall be obtained by the Contractor at no cost to the Owner.

END OF SECTION 00 20 00

above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

GEOTECHNICAL EVALUATION REPORT

PINE CREEK RESERVATION
WIDOKTADWEN PROJECTS
ATHENS TOWNSHIP, MICHIGAN

SME Project No. 065228.00
April 9, 2012

Soil and Materials Engineers, Inc.

Soil and Materials Engineers, Inc.
3301 Tech Circle Drive
Kalamazoo, MI 49008-5611

tel (269) 323-3555
fax (269) 323-3553
www.sme-usa.com

April 9, 2012

Mr. Michael Kounelis
The Skillman Corporation
4650 N. Breton Court S.E.
Grand Rapids, Michigan 49508

Via e-mail: mjkounelis@skillman.com (*PDF file*)

RE: Geotechnical Evaluation
Pine Creek Reservation Widoktadwen Projects
Nottawaseppi Huron Band of Potawatomi
Athens Township, Michigan
SME Project No. 065228.00

Dear Mr. Kounelis:

Soil and Materials Engineers, Inc. (SME) has completed our geotechnical evaluation for the proposed Government Center and DPW Building at the Nottawaseppi Huron Band of Potawatomi Pine Creek Reservation in Athens Township, Michigan. This report presents the results of our observations and analyses, and our geotechnical recommendations related to design and construction, based on the information disclosed by the borings.

We appreciate this opportunity to be of service, and we would be pleased to further discuss the potential impact of our recommendations on the design, construction, and performance of the structure. If you have questions or require additional information, please contact us.

Sincerely,

SOIL AND MATERIALS ENGINEERS, INC.

Bradley G. Parlato, PE
Senior Project Engineer

Timothy J. Mitchell, PE
Principal Consultant

Distribution: Mr. Andrew Mollison, Wightman & Associates, Inc.
Via e-mail: amollison@wightman-assoc.com (*PDF file*)

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TABLE OF CONTENTS

SUMMARY

The report conclusions and recommendations are summarized as follows:

1. The soil conditions encountered in the borings generally consisted of topsoil overlying natural sands with varying amounts of silt and clay, occasional clay strata, and then natural sandy silt at the bottom of the deeper borings. Groundwater was encountered at depths ranging from 5.5 to 23.5 feet beneath the ground surface corresponding to elevations ranging from about 878.5 to 863.5 feet.

2. The natural sands are generally suitable to support foundations, grade slabs, and pavements provided the subgrades are properly evaluated and prepared as discussed in this report. The sand fill encountered in boring B204 should be completely removed from the building footprint and replaced with engineered fill.

   The naturals sands are generally considered suitable for reuse as engineered fill. However, the sand soils contained appreciable silt and clay contents and will require moisture conditioning (i.e., drying) in order to achieve suitable moisture levels for proper compaction. An imported MDOT Class II sand will likely be required to backfill walls and trenches, as a floor slab subbase material, and in other areas requiring drainage.

3. Shallow spread footings bearing on suitable natural sands can be designed using a maximum net allowable soil bearing pressure of 2,000 psf for the DPW Building and 2,500 psf for the Government Center Building. Improvement of the subgrade may be necessary in some areas to achieve the design bearing pressure. Such improvement will likely consist of undercutting and replacing wet or disturbed materials with crushed aggregate. We strongly recommend SME observe and test foundation subgrades during construction to verify the suitability of the subgrade for foundation support, and to identify locations where improvements are needed.

4. Groundwater seepage resulting from perched groundwater conditions into shallow foundation and utility excavations should be anticipated during construction. Standard sump pit and pumping methods should be adequate to control such water accumulations on a local basis. The contractor should also be prepared to utilize coarse crushed aggregates to stabilize subgrades, where necessary.

The summary presented above includes selected elements of our findings and recommendations and is provided solely for purposes of overview. It does not present crucial details needed for the proper application of our findings and recommendations. It should, therefore, not be considered apart from the entire text of this report and appendices, with all of the qualifications and considerations mentioned therein which are best evaluated with the active participation of SME.

REPORT PREPARED BY:

Bradley G. Parlato, PE
Senior Project Engineer

REPORT REVIEWED BY:

Timothy J. Mitchell, PE
Vice President

1.0 INTRODUCTION

This report presents the results of our geotechnical evaluation for the proposed Government Center and DPW Building to be constructed at the Nottawaseppi Huron Band of Potawatomi Pine Creek Reservation in Athens Township, Michigan. This evaluation was conducted in general accordance with the scope of services outlined in SME Proposal No. P00166.12, dated January 27, 2012, with the following scope changes:

- Three borings within the proposed water feature were eliminated because the water feature concept was eliminated by the owner.
- Two additional borings (B202 and B203) were performed at the DPW site per Mr. Michael Kounelis's requested on March 16, 2012.
- Two additional borings (B204 and B205) were added within the proposed basement location of the Government Center.

SME previously performed a preliminary geotechnical evaluation for the Government Center, Transportation Building, and Pow Wow Grounds at the site. The results of the preliminary evaluation were provided to The Skillman Corporation in a report dated December 5, 2011 (SME Project No. 064709.00), and the borings from that evaluation are included with this report.

1.1 Site Conditions

The project site is located at the existing Nottawaseppi Huron Band of Potawatomi Pine Creek Reservation, on the west side of 1-1/2 Mile Road, between S Drive South and T Drive South in Athens Township, Michigan. The Indian Creek Drain extends north-south through the central area of the site. Pine Creek is located approximately 700 feet east of the project sites.

Based on a Topographical Survey (dated 11/11/11) prepared by Wightman & Associates, Inc., existing grades range from about 883 to 884 feet at the DPW site, and from about 886 feet to 890 feet at the proposed Government Center location.

The ground surface at the proposed Government Center currently consists of a maintained grass-covered lawn with scattered trees. The DPW building location is heavily wooded with trees and brush. An existing storm water retention pond is located north of the DPW site, with a reported controlled maximum water elevation of about 881 feet. During the time of our field activities, water was observed in the bottom of the pond at an unknown elevation.

1.2 Project Description

The project will include constructing a new Government Center and DPW Building. The Government Center will be constructed north of the existing Administration Building and will consist of a two-story, steel-framed structure with a plan area of about 33,000 square-feet. A basement will be constructed within the central region of the building, and will have a plan area of about 8,000 square-feet. The areas north and south of the basement will consist of slab-on-grade construction. We anticipate the design main finished floor level will be about elevation 889 feet, and the design basement slab elevation will be about 880 feet. Minor cuts and fills of about 2 feet or less will be required in the slab-on-grade portions of the building.

The DPW Building will be located southwest of the community center, adjacent to the existing parking lot. The building will consist of a one-story slab-on-grade, masonry block structure with high-bay walls in the garage area. A portion of the building will be occupied by heated office space. Based on the topographic information provided, approximately 2 feet of fill will be required within the DPW building location to establish final grades.

Structural loads were not provided to us for either structure during this evaluation. Based on our understanding of the project and our experience with similar sized structures, we anticipate maximum column loads of less than 100 kips and maximum wall loads of less than 4 kips per linear foot for the buildings. If the design loads are determined to be significantly different than the assumed loads indicated above, SME should be contacted to review the design loads and then either confirm or revise the recommendations of this report.

2.0 EVALUATION PROCEDURES

2.1 Field Exploration

Six borings (B201 through 206) were performed at the project sites on March 16, 2012. Eight previous borings (B101 through B108) were performed at the project site on November 10 and 18, 2011. The borings extended 10 to 25 feet below the existing ground surface. Please refer to the boring logs included in Appendix A for the specific depth at each boring location. The approximate locations of the borings are shown on the Boring Location Diagram included in the Appendix.

SME and The Skillman Corporation jointly determined the planned number, locations, and depths of the borings. The boring locations were staked in the field by SME. Existing ground surface elevations at the boring locations were estimated by SME to the nearest 1 foot based on existing topographic information included on the referenced survey.

The most recent borings (B201 through B206) were performed with a truck-mounted, Geoprobe® rig using direct push technology. Dynamic Cone Penetrometer (DCP) tests were performed at the geoprobe borings to estimate the relative density of granular soils. The previous borings for the preliminary evaluation were performed using a truck-mounted rotary-drill rig and were advanced to the sampling depths using continuous-flight, hollow-stem augers. The borings included soil sampling based upon the Split-Barrel Sampling Procedure. Soil samples collected from the borings were sealed in glass jars by the driller. The borings for the groundwater level measurements were recorded during and immediately after completion of the drilling operations. At boring B206, the driller installed a groundwater level observation well with a screen depth about 6 to 11 feet below the ground surface. After completion of the field operations and recording of groundwater levels, the boreholes were backfilled with cuttings and bentonite chips. The recovered soil samples were sent to the SME laboratory for further observation and testing.

2.2 Laboratory Testing

The laboratory testing program consisted of performing visual soil classification on recovered samples. Moisture content and shear strength tests were performed on cohesive samples obtained. The Laboratory Testing Procedures in Appendix B provides a description of the visual engineering classification performed on the recovered samples.

Upon completion of the laboratory testing, boring logs were prepared and include information on materials encountered, penetration resistances, pertinent field observations made during the drilling operations, and the results of the laboratory tests. The boring logs are included in Appendix A. The soil descriptions included on the boring logs were developed from both visual classification and the results of laboratory tests, where applicable.

Soil samples retained over a long time, even sealed in jars, are subject to moisture loss and are no longer representative of the conditions initially encountered in the field. Therefore, soil samples are normally retained in our laboratory for 60 days and then disposed, unless instructed otherwise.

3.0 SUBSURFACE CONDITIONS

3.1 Soil Conditions

The soil conditions encountered at the borings generally consisted of surface topsoil underlain by natural sands extending to the explored depths of the borings. A generalized

summary of the materials encountered at the boring locations, beginning at the existing ground surface and proceeding downward, is provided below.

Stratum 1: Topsoil. The driller reported about 4 to 12 inches of sandy topsoil at the surface of the borings.

Stratum 2: Natural Sands. Natural sands containing varying amounts of silt, clay, and gravel extended from below the topsoil to the explored depths of the borings. The sands were in a very loose to very dense condition, with Standard Penetration Test (SPT) resistances (N-values) ranging from 4 to 20 blows per foot and DCP resistances ranging from 6 to over 100 blows per 6 inches. The sands at shallow depths generally contained appreciable amounts of clay and/or silt. The relative density of the sands generally increased with depth.

Sand fill was encountered at B204 and extended to a depth of about 4.3 feet beneath the ground surface. The fill contained frequent root fibers, wood fragments, and roots.

Stratum 3: Silty Sand or Sandy Silt. Natural silty sand or sandy silt was encountered beneath the Stratum 2 materials at the deeper borings, and extended to the explored depths of those borings. The sands or silts were in a medium dense to dense condition, with N-values ranging from 25 to 67 blows per foot.

The soil profile described above and included on the appended boring logs is a generalized description of the conditions encountered. The stratification depths described above and shown on the boring logs are intended to indicate a zone of transition from one soil type to another. They are not intended to show exact depths of change from one soil type to another. The soil descriptions are based on visual classification of the soils encountered. Soil conditions may vary between or away from the boring locations. Please refer to the boring logs for the soil conditions at the specific boring locations.

3.2 Groundwater Conditions

During drilling, groundwater was encountered in four of the previously performed borings and in each of the recently performed borings, at depths ranging from about 5.5 feet to 13.5 feet below the existing ground surface. The corresponding elevations ranged from about 881 feet to 876 feet. Upon completion of drilling, groundwater levels were measured approximately 5.5 feet to 23.5 feet below the ground surface, or at elevations ranging from about 879 feet to 864 feet. A water level reading obtained in the well at B206 indicated the water level was at elevation 877.9 on March 21, 2012.

The predominately granular (sand) soils encountered in the upper soil profile at this site contained appreciable amounts of silt and clay, and should be expected to have lower permeability characteristics than cleaner (less silty or clayey) sands. Therefore, a period of time

may be necessary for groundwater levels to achieve equilibrium in small diameter boreholes. In general, we believe that the groundwater levels encountered in the borings for this evaluation are indicative of the groundwater levels at the time of drilling. *However, the variable permeability characteristics of the soils could result in localized perched groundwater conditions at higher elevations, especially in areas where a lower confining layer of less permeable silty soil is encountered.* Based on the USGS Map for Union City, the surface water level within the nearby Pine Creek ranges from about elevation 865 to 870 feet.

Hydrostatic groundwater levels and perched conditions should be expected to fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, and other factors. The groundwater levels indicated by the borings and presented in this section represent conditions at the time the readings were taken. The actual groundwater levels at the time of construction may vary.

4.0 ANALYSIS AND RECOMMENDATIONS

Conventional spread foundations are considered suitable for support of the proposed structures. The design lower level elevation of the Government Center building is expected to be within one to two feet of the site groundwater. Therefore, we have recommended perimeter foundation drains to maintain dry conditions next to the below-grade walls and to prevent hydrostatic pressures, and also below floor underdrains to alleviate mounding of groundwater that could result in hydrostatic uplift pressures on the floor slab and wet conditions in the basement, should the groundwater levels fluctuate to above the design floor level.

4.1 Site Preparation and Earthwork

4.1.1 General Site Subgrade Preparation

The proposed building areas and areas to receive engineered fill should be cleared of existing vegetation, topsoil, and other deleterious materials to expose the underlying inorganic subgrade soils. Existing utilities (if any) should also be removed from the proposed building areas.

After stripping of topsoil, we anticipate the underlying inorganic subgrade soils will generally consist of natural sands containing appreciable amounts of silt or clay. The sand fill encountered at B204 contained roots and debris, and is not considered suitable for structural support. We anticipate that the fill will be removed as part of the basement excavation.

However, if similar fill soils are encountered within the building footprint, the fill should be completely removed and replaced with engineered fill. Existing fill materials can be evaluated by SME on a case-by-case basis during construction.

After stripping and removal of deleterious materials and cuts are made to design subgrade levels, we recommend the exposed subgrade soils be subjected to a comprehensive proofrolling program. The purpose of proofrolling is to locate areas of unsuitably loose or soft subgrade. Proofrolling should be performed with a fully-loaded, tandem-axle truck or other similar pneumatic-tired construction equipment. Areas of unsuitable (i.e., wet, loose, or soft) subgrade revealed during proofrolling should be mechanically improved (compacted) in-place. If it is not possible to compact the unsuitable subgrade, it may be necessary to remove the unsuitable soils and replace them with engineered fill.

The clayey and silty sand subgrade soils at this site are moisture sensitive and susceptible to disturbance, especially when exposed to water and construction traffic. If the subgrade becomes disturbed, the subgrade soils must be improved in-place by compaction or removed and replaced with engineered fill, crushed aggregate, or crushed concrete. Successful improvement of clayey or silty soils by compaction in-place may be difficult, especially during seasonally cold and/or wet weather. Therefore, the contractor should be prepared to undercut unsuitable soils and replace them with crushed aggregates. Placement of crushed aggregate is a traditional treatment to protect and stabilize disturbed subgrades. Crushed aggregate used to backfill undercuts or to stabilize disturbed soils, should consist of a well-graded, crushed natural aggregate or crushed concrete, ranging in size from about 1 to 3 inches, and with no more than 7 percent passing the No. 200 sieve.

We anticipate improvements will be required at the basement subgrade levels due to the proximity of the groundwater level and the potential presence of perched groundwater conditions. The contractor should be prepared to control perched groundwater within the basement excavation using standard sump pit and pumping procedures, and placement of crushed aggregate to stabilize and protect disturbed subgrades. We suggest the construction budget include a contingency for use of temporary pumping methods and use of crushed aggregates.

After cuts are made to design grades and after the exposed subgrade is evaluated by SME and improved as necessary, engineered fill may be placed on the exposed subgrade to establish final subgrade levels. Section 4.1.3 of this report presents materials and compaction requirements for engineered fill.

4.1.2 Subgrade Preparation for Floor Slabs-on-Grade

We anticipate the final subgrade for the slab-on-grade portion of building pads will consist of properly prepared sands, or engineered fill placed over properly prepared natural soils. Prior to concrete placement for grade slabs, the subgrade should be observed and tested by SME to verify suitability of the subgrade for slab support. Testing may consist of proofrolling the subgrade and/or performing density-in-place testing or other testing using hand-operated augers and cone penetrometers, as determined appropriate by SME for the conditions observed. Unsuitable subgrade indicated by SME should be recompacted or removed and replaced with engineered fill.

We recommend the top 4 inches of the upper (main floor) slab-on-grade subbase consist of an approved MDOT Class II granular material to provide a leveling surface for construction of the slab and a moisture capillary break between the slab and the underlying soils. Alternately, an approved MDOT 21AA dense-graded aggregate may be used in lieu of the Class II granular material, to provide improved stability and resistance to disturbance. ***Use of the 21AA material can be particularly beneficial in protecting the subgrade if construction is likely to occur during periods of adverse (cold and wet) weather and/or if the lower slab areas will remain unpaved and serve as a staging area throughout the construction operations.*** The thickness of aggregate needed to maintain a stable construction platform may be greater than 4 inches and will depend on the condition of subgrade soils during construction and the type and volume of construction equipment expected to traffic the prepared subgrade. The granular material or aggregate should also be compacted as engineered fill per Section 4.1.3.

The slab subbase for the lower basement area of the Government Center should consist of a drainage blanket of a minimum thickness of 10 inches of open graded drainage aggregate such as MDOT 4G. Additional recommendations for drainage are provided in Section 4.4 of this report.

In general, we recommend providing vapor retarders below floor slabs that will receive an impermeable floor finish/seal, or a floor covering which would act as a vapor retarder. Even if these floor coverings are not planned, the vapor retarder can reduce the transmission of moisture vapor from the ground into the buildings, which can occur due to thermal and humidity variations and other conditions. Plastic sheeting that is continuously placed and overlapped at least 18 inches is generally considered suitable for the vapor retarder system. For durability purposes during construction, we recommend the thickness of the plastic sheets be no less than 10 mils. The vapor retarder should be protected from damage during construction and the use of plywood "runways" may be required to transport concrete across the prepared subgrade.

However, the placement of a vapor retarder affects construction of the floor slab, concrete curing, and the rate of moisture loss as the concrete dries. We would be pleased to discuss considerations related to vapor retarders in more detail, if desired.

Slabs should be separated by isolation joints from structural walls and columns bearing on their own footings to permit relative movement. A minimum of 6 inches of engineered fill should be provided between the bottom of the slab and the top of the shallow spread footing below. Otherwise, other arrangements should be made to allow for potential relative settlements, such as grade beams, thickened slabs with appropriate reinforcing steel, or other appropriate details.

The slab-on-grade subgrade soils should be protected from frost during winter construction. Any frozen soils should be thawed and compacted or removed and replaced prior to slab-on-grade construction.

4.1.3 Subgrade Preparation for Basement Floor Slab

The basement subgrade should be prepared per the subgrade recommendations provided in Section 4.1.1 and 4.1.2. Due to the presence of perched groundwater onsite, we recommend installing underdrains beneath the basement slab to prevent mounding of groundwater. The underdrains should consist of 6-inch diameter perforated plastic drain pipe, wrapped with a filter fabric, and bedded with pea gravel. The underdrains should have a maximum center to center spacing of 20 feet and be placed in a granular drainage blanket with thickness of at least 10 inches. The drainage blanket material can consist of either MDOT Class II Granular material or an open-graded drainage aggregate such as MDOT 4G. If open-graded aggregate is used, it should be choked off with a minimum 3 inches of MDOT 21AA dense-graded aggregate before construction of the slabs.

The drains should be discharged into a sump and pumping system, or into a gravity drainage outlet, if feasible. We recommend the design to include redundancy in the drainage paths, and provisions for access to the drains for cleaning and maintenance.

4.1.4 Engineered Fill Requirements

Any fill placed within the construction areas, including utility trench backfill, should be an approved material, free of frozen soil, organics, or other deleterious materials. The fill should be spread in level layers of appropriate thickness for the compaction equipment utilized, and should be compacted to a minimum of 95 percent of the maximum dry density as determined in accordance with the Modified Proctor test. The compaction equipment used must be sufficiently sized to achieve the required density throughout the entire fill lift.

Based on the information from the borings, the natural sands are generally suitable for use as site engineered fill provided they meet the requirements listed in the previous paragraph. However, because of the relatively high proportion of silt or clay within the upper sands, the use of the existing sands will be restricted as discussed below. Proposed fill materials containing more than 4 percent organics should not be used for engineered fill.

Soils containing appreciable amounts of silt or clay may require moisture conditioning (aerating and drying) to achieve appropriate moisture contents for successful reuse as engineered fill. Clays and sands with appreciable amounts of fines are also difficult to compact in confined areas where compaction by smaller hand-operated equipment is required, and these soils should not be used in areas where drainage is required. We recommend the clays, and sands with appreciable fines, be reused only in open areas where large compaction equipment can be used to spread and compact the soil.

The successful reuse of the on-site soils for engineered fill will be dependent on the time of year and the care the earthwork contractor uses in selecting and separating the fine grained soils (i.e., clays and clayey sands) from the more granular soils. During cold and wet periods of the year, the subgrade soils can become saturated and disturbed and clays and clayey sands will be difficult to dry.

In areas where compaction is accomplished primarily by hand-operated equipment, and in areas where drainage is required such as the basement wall backfill, an approved granular material, such as MDOT Class II granular material, should be used as backfill. Thinner lifts will be necessary to achieve compaction of the backfill using smaller plate compactors.

Based on the borings and our visual classifications, portions of the on-site soils (with USGS classifications "SP" and possibly "SP-SM") could potentially meet MDOT Class II gradational requirements. These "cleaner" sands were encountered below the clayey soils at depths ranging from about 2 to 5 feet and may be available from the basement excavation, assuming the contractor is able to successfully sort and separate the cleaner sands from materials containing appreciable silt and clay. SME should verify the suitability of sands proposed for reuse by performing gradation analyses of identified soils during construction. If clean sands are not available from on-site sources, sand meeting MDOT Class II requirements will have to be imported to the site.

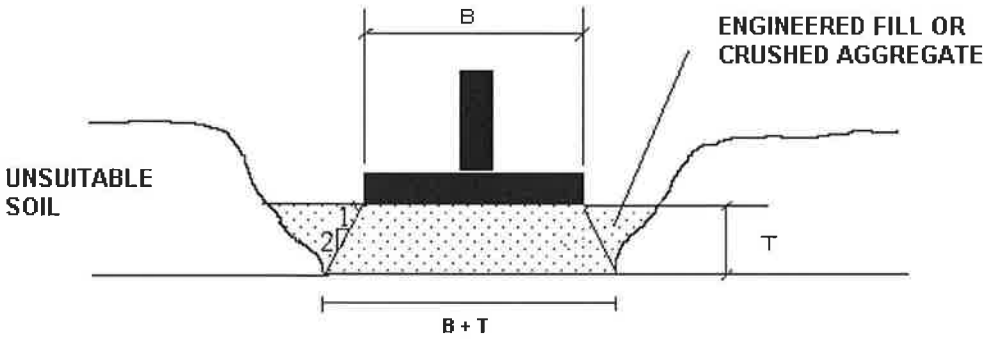
4.2 Foundations

Shallow spread footings bearing on natural sands or on engineered fill placed over suitable natural soils, are recommended for support of the proposed buildings. We recommend a maximum net allowable soil bearing pressure of 2,000 pounds per square-foot (psf) for design of

shallow isolated column and continuous foundations at the DPW Building, and 2,500 psf for the design of foundations (including basement foundations) at the Government Center.

At the DPW Building, higher bearing pressures could be achieved by extending the foundation excavations about 3 feet below existing grades where medium dense to dense sands were encountered. However, based on the relatively light loading conditions, the additional excavation costs associated with achieving a higher bearing pressure are not likely justified for the proposed structure.

Suitable natural bearing soils were generally encountered beginning just below the topsoil and fill at the boring locations. The anticipated foundation subgrades are expected to consist of silty and clayey sand soils or clay. These soils are moisture sensitive and susceptible to disturbance when exposed to moisture and traffic. Since it may not be feasible to mechanically improve these soils in-place by compaction, we anticipate subgrade improvements may require undercutting unsuitable and disturbed soils and replacing them with crushed aggregates. The design bearing level can then be reestablished using crushed aggregate or engineered fill. Undercuts to remove unsuitable soils should extend laterally on a two vertical to one horizontal slope from the edge of the footing. Please refer to the following Typical Foundation Undercutting Diagram:



SUITABLE PREPARED SOIL

SME should be present during construction to verify proper undercut depths are achieved (if necessary), proper backfilling procedures are performed that meet the recommendations of Section 4.1.4, and to test the resulting foundation bearing surfaces.

Foundations should be situated a minimum of 42 inches below final site grades in any unheated areas for protection against frost action during normal winters. Interior foundations can be constructed at shallower levels on suitable soils just below the floor slab. However, the

footings and proposed bearing soils must be protected from freezing during construction if work occurs in the winter months. In addition, any caved soils should be suitably removed from the foundation bearing surfaces before placing concrete.

Based on the predominantly granular soils encountered and the potential presence of perched groundwater, we do not believe the existing soils are suitable for construction of neat cut trench footings. We recommend sloping back the foundation excavations and forming the foundation side-walls to maintain vertical faces for foundations and reduce the potentially adverse effects resulting from frost heave.

For bearing capacity and settlement considerations, continuous (wall) footings should have a minimum width of 18 inches and spread (column) footings should have a minimum dimension of 30 inches. In some cases, the minimum footing size criteria may govern the size of the foundation and not the allowable soil bearing pressure.

Total settlements for spread foundations are estimated to be 1 inch or less, and differential settlements for foundations supporting similar loads are estimated to be about one-half of the total settlement estimate, or less. These settlement estimates are based on the boring information, the maximum net allowable soil bearing pressure, the anticipated design structural loads, our experience with similar structures and soil conditions, and field verification of suitable bearing soils by SME.

4.3 Seismic Site Class

The project site is located in Southeast Quarter of Section 20, Township 4 South, Range 8 West in Athens Township, Michigan. Based on topographic information included on the referenced Topographic Survey, existing ground surface levels at the project site vary from about elevations 884 feet to 890 feet. Based on Plate 13 (Topography of the Bedrock Surface) in the Hydrogeologic Atlas of Michigan, the estimated level of the top of rock underlying the site is between approximately elevation 750 feet and 800 feet, based on interpolation from 50 foot contour intervals. From this information, the glacial drift overlying the rock is estimated to be about 90 feet to 140 feet thick.

According to the limited information obtained from the borings, the subgrade soils at this site can be designated as seismic site Class D for purposes of determining seismic design forces for this project in accordance with the 2009 MBC Code (Table 1613.5.2).

4.4 Below-Grade Walls and Drainage

Below-grade walls will be constructed for the Government Center basement. Below-grade walls should be backfilled with MDOT Class II granular material. Positive surface drainage should also be established away from the basement walls and roof downspouts should not be discharged onto the ground surface adjacent to the walls.

Below-grade wall backfill should be properly placed per the recommendations provided in the "Engineered Fill Requirements" section of this report (Section 4.1.4). Backfill that will be used for structural support should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test. As a minimum, backfill that will not be used for structural support of pavements, floor slabs, or sidewalks should be compacted to the degree where it is stable under construction equipment. Care should be exercised during compaction of the wall backfill to avoid overstressing the walls. If required, walls should be designed to accommodate the additional stresses associated with operating compaction equipment adjacent to the wall.

For a drained granular backfill and a level finish surface behind the wall, we recommend an active equivalent fluid pressure of 40 pounds per cubic foot (pcf) for design. This earth pressure is based on the wall being flexible enough to permit the active earth pressure condition to be reached. An outward movement away from the backfill equal to approximately 0.001 times the height of the wall is generally required to achieve the active earth pressure condition for granular backfill. If the wall is restrained or is rigid enough so that it does not rotate sufficiently to reach the active earth condition, a higher lateral earth pressure (at-rest condition) should be used for design. For rigid walls backfilled with a free-draining granular material and a level finish surface behind the wall, we recommend an at-rest fluid pressure of 55 pcf for design.

Any additional lateral pressures due to surcharge loading, such as adjacent floor or column loads, traffic loads, sloping ground, or parking loads, should be added to the above lateral earth pressures for design. We recommend using horizontal coefficients of 0.3 and 0.5, for active and at-rest conditions respectively, to calculate loads on walls due to surcharges. Use of these values require a granular wall backfill. Surcharge loads should be modeled as a uniform pressure distribution applied to the entire wall height.

Use of the above lateral pressures for flexible and rigid wall conditions requires a drained, granular wall backfill. We anticipate the design floor level in the basement will be about 1 to 2 feet above the groundwater level at the time of our evaluation. Although we believe the risk of significant hydrostatic pressure building up against the basement walls resulting from the groundwater level is relatively low, the limited information from the borings is not sufficient to preclude a future rise in groundwater levels, or the migration and storage of infiltrated

groundwater in the more permeable granular wall backfill adjacent to the clayey and silty natural sands and clays. Therefore, we recommend properly installed and maintained foundation drains be provided at the base of the basement walls. The drains should consist of a minimum 6-inch diameter perforated plastic drain pipe, wrapped with a filter fabric and surrounded by 6 inches of a filter material, such as pea gravel (MDOT 34R). As indicated above, the walls should be backfilled with MDOT Class II granular material.

We recommend providing an underdrain system consisting of a gravel drainage blanket with a series of underdrains below the basement floor slab to protect against water mounding and infiltration into the basement area. The drainage blanket should be at least 10 inches thick and should consist of an open graded drainage material such as MDOT 4G. Floor underdrains situated within the drainage blanket should have a minimum diameter of 6-inches and be wrapped with a filter fabric and embedded in the drainage aggregate or surrounded with a minimum of 6 inches of pea gravel. The underdrains should be spaced no more than 20 feet center-to-center. The underdrains need only extend in one direction (typically the short dimension) and should be sloped at a minimum of 0.5 percent (about 1/16-inch per foot).

The floor underdrains and perimeter foundation drains should be discharged to a suitable outlet via gravity drainage. Otherwise, the drains should discharge to a sump pit where a pump can discharge the drainage to a storm sewer or other suitable outlet, Auxiliary power should be considered, in the event of a power outage.

We recommend a continuous waterproofing membrane be placed below the floor slab and at least partially up the exterior of the basement walls for a minimum of 5 feet and then damp proofing for the remaining distance. As with any waterproofing or damp proofing system, the membrane should be protected against damage from backfilling and construction operations. Regular maintenance will be required to keep the drains in good working order. Clean-outs should be provided to access the drains.

4.5 Construction Considerations

Groundwater seepage resulting from perched groundwater conditions should be anticipated in excavations extending greater than about 5 feet below the existing ground surface. Groundwater infiltration from the static groundwater level could be encountered in basement foundation excavations or deeper utility excavations. During the December 2011 construction of the newly installed solar panel array foundation located adjacent to the proposed DPW site, groundwater was not encountered within the 8-foot deep excavation. However, during the over-night period, water did infiltrate into the lower 12 inches of the excavation. Therefore, the contractor should be prepared to control groundwater, especially if the excavation is allowed to

remain open for longer than a short period of time. For excavations that extend no more than about 1 foot below the groundwater encountered in sands, we anticipate standard sump pit and pumping procedures should generally be adequate to control these accumulations on a localized basis. Higher capacity dewatering techniques (such as well points or pumps in slotted casings) could be required to dewater excavations extending more than about 1 foot below the groundwater levels, especially in areas of cleaner sands or for excavations that are required to remain open for extended periods.

The exposed subgrade soils are moisture sensitive and susceptible to disturbance due to weather and activity on-site. Therefore, the contractor should remove ponded surface water and properly prepare and slope site grades to route water away from prepared subgrades and to prevent surface water from reaching the footing excavations. The contractor should also establish positive surface drainage as soon as practical to mitigate the risk of disturbance. Disturbed soils should be moisture conditioned and recompacted in-place, or undercut and replaced with engineered fill. Moisture conditioning may not be feasible during seasonally cold and wet times of the year, resulting in a potential need for additional imported fill, or mining of clean sand from on-site, if the site work is performed between the late fall and early spring seasons.

The contractor must provide a safely sloped excavation or an adequately constructed and braced shoring system in accordance with federal, state, and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, stronger shoring must be used to resist the extra pressure due to the superimposed loads.

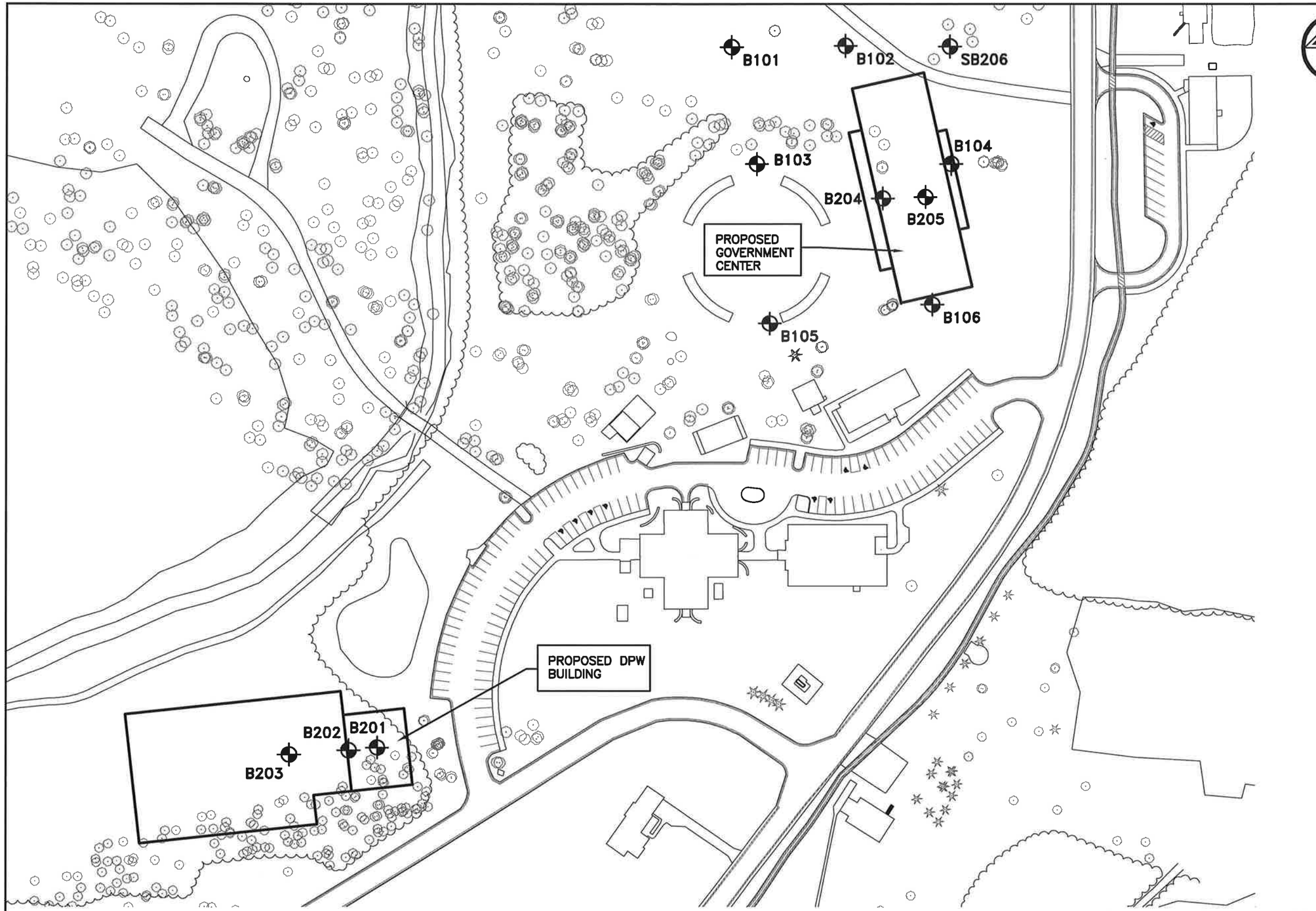
APPENDIX A

BORING LOCATION DIAGRAM

GEOTECHNICAL NOTES

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

BORING LOGS (B101 THROUGH B106 & B201 THROUGH B206)



NOTE:
DRAWING INFORMATION TAKEN FROM BASE MAP PREPARED BY WIGHTMAN & ASSOCIATES.

LEGEND

APPROXIMATE BORING LOCATION

0' 100' 200'

GRAPHIC SCALE: 1" = 100'

Apr 04, 2012 - 3:07pm - MANDRILA
S:\65000\065228.00\DWGS\rev0\065228.00-01.dwg

No.	Revision Date

BORING LOCATION DIAGRAM

WIDOTKAWEN PROJECT

FULTON, MICHIGAN

Date	03-18-12
Drawn By	GM
Designed By	BGP
Scale	1" = 100'
Project	065228.00

Indiana
Michigan
Ohio

www.sme-usa.com

Figure No. 1

soil and materials engineers, inc.

GEOTECHNICAL NOTES

Sampling Symbols

2ST	–	Shelby Tube – 2" O.D.
3ST	–	Shelby Tube – 3" O.D.
AS	–	Auger Sample
CS	–	Continuous Sample
GS	–	Grab Sample
LS	–	Liner Sample
NR	–	No Recovery
RC	–	Rock Core diamond bit. NQ size, except where noted
SS	–	Split-Spoon 1-3/8" I.D., 2" O.D. except where noted
VS	–	Vane Shear
WS	–	Wash Sample

Typical Abbreviations

WOH	–	Weight of Hammer
WOR	–	Weight of Rods
SP	–	Soil Probe
PID	–	Photo Ionization Device
FID	–	Flame Ionization Device

Standard Penetration 'N-value' – Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split spoon, except where noted.

Particle Sizes

Boulders	-	Greater than 12 inches (305 mm)
Cobbles	-	3 inches (76.2 mm) to 12 inches (305 mm)
Gravel-Coarse	-	3/4 inches (19.05 mm) to 3 inches (76.2mm)
Fine	-	No. 4 (4.75 mm) to 3/4 inches (19.05 mm)
Sand- Coarse	-	No. 10 (2.00 mm) to No. 4 (4.75 mm)
Medium	-	No. 40 (0.425 mm) to No. 10 (2.00 mm)
Fine	-	No. 200 (0.074 mm) to No. 40 (0.425 mm)
Silt	-	0.005 mm to 0.074 mm
Clay	-	Less than (0.005 mm)

Depositional Features

Parting	-	as much as 1/16 inch (1.6 mm) thick
Seam	-	1/16 inch (1.6 mm) to 1/2 inch (12.7 mm) thick
Layer	-	1/2 inch (12.7 mm) to 12 (305 mm) inches thick
Stratum	-	greater than 12 inches (305 mm) thick
Pocket	-	small, erratic deposit of limited lateral extent
Lens	-	lenticular deposit
Varved	-	alternating seams or layers of silt and/or clay and sometimes fine sand
Occasional	-	one or less per foot (305 mm) of thickness
Frequent	-	more than one per foot (305 mm) of thickness
Interbedded	-	applied to strata of soil or beds of rock lying between or alternating with other strata of a different nature

Groundwater levels indicated on the boring log are the levels measured in the boring at the times indicated. The accurate determination of groundwater levels may not be possible with short term observations, especially in low permeability soils. The groundwater levels shown may fluctuate throughout the year with variation in precipitation, evaporation and runoff.

Classification

Cohesionless Soils (Blows per foot or 0.3 m)

Very Loose	:	0 to 4
Loose	:	5 to 9
Medium Dense	:	10 to 29
Dense	:	30 to 49
Very Dense	:	50 to 80
Extremely Dense	:	Over 80

Soil Constituents

Trace	:	Less than 5%
Trace to Some	:	5% to 12%
Some	:	12% to 25%
Use Descriptor (i.e., Silty, Clayey, etc.)	:	25% to 50%

Cohesive Soils

Consistency		Shear Strength
Very Soft	:	0.25 kips/ft^2 (12.0 kPa) or less
Soft	:	0.25 to 0.49 kips/ft^2 (12.0 to 23.8 kPa)
Medium	:	0.50 to 0.99 kips/ft^2 (23.9 to 47.7 kPa)
Stiff	:	1.00 to 1.99 kips/ft^2 (47.8 to 95.6 kPa)
Very Stiff	:	2.00 to 3.99 kips/ft^2 (95.7 to 191.3 kPa)
Hard	:	4.00 kips/ft^2 (191.4 kPa) or greater

Soil description

If clay content sufficiently dominates soil properties, then clay becomes the primary noun with the other major soil constituent as modifier: i.e. silty clay. Other minor soil constituents may be added according to estimates of soil constituents present, i.e., silty clay, trace to some sand, trace gravel.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)		
		GW	Well-graded gravels; sandy gravels, little or no fines
		GP	Poorly-graded gravels; sandy gravels, little or no fines
	Gravels with fines (More than 12% fines)		
		GM	Silty gravels, some sand or sandy gravels, some silt
		GC	Clayey gravels, some sand or sandy gravels, some silt
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)		
		SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)		
		SM	Silty sands or sands, some silt
		SC	Clayey sands or sands, some clay
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts, sandy silts or clayey silts with slight plasticity
		CL	Inorganic clays of low plasticity, sandy clays, silty clays
		OL	Organic silts and organic clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity
		OH	Organic silts and organic clays of high plasticity
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

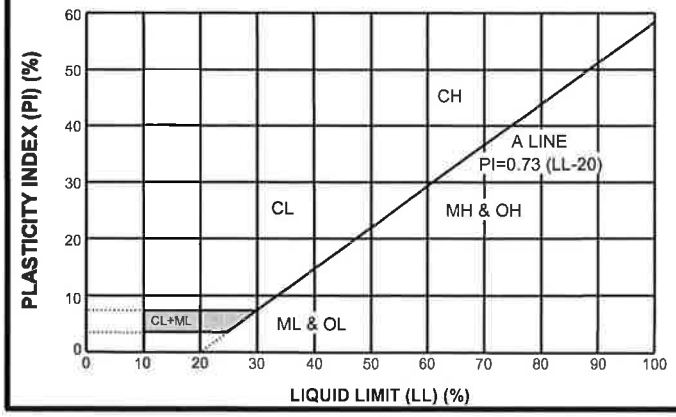
LABORATORY CLASSIFICATION CRITERIA

GW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with PI greater than 7	
SW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with PI greater than 7	

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

PLASTICITY CHART



soil and materials engineers, inc.
michigan, ohio and indiana

BORING B101

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan

DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11 **BORING METHOD:** Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75 **LOGGED BY:** EFG **CHECKED BY:** MLB

SURFACE ELEVATION: 888± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES
	0	0.3 Driller Reported About 4 inches of Sandy Topsoil- Brown (887.7)		
885	5	Silty Fine Sand- Trace Gravel and Clay- Occasional Sandy Silt Seams- Brown- Moist- Very Loose to Loose (SM)	SS1	3 2 2
			SS2	2 2 3
		6.0 882.0		
880	10	7.0 Silty Fine Sand- Occasional Tree Roots- Brown- Moist- Medium Dense (SM) 881.0	SS3	12 7 6
		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Wet- Loose (SP-SM)	SS4	4 4 4
		12.0 876.0		
875	15	Clayey Fine Sand- Some Silt- Trace Gravel- Brown- Wet- Loose (SC)	SS5	4 4 5
		15.0 873.0 END OF BORING AT 15.0 FEET.		
870	20			
865	25			
860	30			

N-VALUE – O (10 20 30 40)

DRY DENSITY (pcf) – ■ (90 100 110 120)

MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
○ UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
× VANE SHEAR (REMOLDED)
⊕ TRIAXIAL (UU)
SHEAR STRENGTH (KSF) (1 2 3 4)

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	7.0	881.0
▼ AT END OF BORING:	13.5	874.5
CAVE-IN OF BOREHOLE AT:	13.5	874.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

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michigan, ohio and indiana

BORING B102

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan

DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11 **BORING METHOD:** Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75 **LOGGED BY:** EFG **CHECKED BY:** MLB

SURFACE ELEVATION: 888± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO.	BLOWS PER SIX INCHES
	0	0.5 Driller Reported About 6 inches of Sandy Topsoil- Brown	887.5	
885	5	Clayey Fine Sand- Some Silt- Trace Gravel- Occasional Silty Fine Sand Seams- Brown- Moist- Medium Dense to Loose (SC)	SS1	5 5 5
			SS2	4 3 4
		6.0	882.0	
880	10	Silty Fine Sand- Trace Gravel- Brown- Moist- Medium Dense (SM)	SS3	4 5 6
			SS4	6 6 7
		11.0	877.0	
875	15	Clayey Fine Sand- Trace Gravel- Occasional Sandy Silt Seams- Brown- Moist- Medium Dense (SC)	SS5	11 13 16
		15.0	873.0	
870	20	END OF BORING AT 15.0 FEET.		
865	25			
860	30			

N-VALUE – O (10 20 30 40)

DRY DENSITY (pcf) – ■ (90 100 110 120)

MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
O UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
X VANE SHEAR (REMOLDED)
◈ TRIAXIAL (UU)
SHEAR STRENGTH (KSF) (1 2 3 4)

REMARKS

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

	DEPTH (FT)	ELEV (FT)
CAVE-IN OF BOREHOLE AT:	13.5	874.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. Groundwater was not encountered during or after completion of drilling operations.

April 9, 2012

soil and materials engineers, inc.
michigan, ohio and indiana

BORING B103

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan

DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11 **BORING METHOD:** Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75 **LOGGED BY:** EFG **CHECKED BY:** MLB

SURFACE ELEVATION: 887± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO.	BLOWS PER SIX INCHES
887	0			
	0.8	Driller Reported About 10 inches of Sandy Topsoil- Brown		
886.2		Clayey Fine Sand- Some Silt- Trace Gravel- Occasional Sandy Silt Seams- Brown- Moist- Loose (SC)	SS1	4 4 4
885	3.5			
883.5		Fine Sand- Trace to Some Silt- Trace Gravel- Occasional Clayey Sand Seams- Brown- Moist- Medium Dense (SP-SM)	SS2	4 5 5
	5		SS3	6 9 9
880	8.5		SS4	3 3 4
878.5		Clayey Fine Sand- Some Silt- Trace Gravel- Brown- Wet to Moist at 13 feet- Loose to Medium Dense (SC)		
	10		SS5	6 6 7
875				
	15			
870	18.5		SS6	9 13 13
868.5		Fine Sand- Some Silt- Trace Gravel- Occasional Clayey Sand Layers- Brown- Wet- Medium Dense (SM)		
	20			
865			SS7	6 7 7
	25			
862.0	25.0	END OF BORING AT 25.0 FEET.		
860	30			

N-VALUE – O (10 20 30 40)

DRY DENSITY (pcf) – ■ (90 100 110 120)

MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
O UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
X VANE SHEAR (REMOLDED)
⊕ TRIAXIAL (UU)
SHEAR STRENGTH (KSF) (1 2 3 4)

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	8.5	878.5
▼ AT END OF BORING:	23.5	863.5
CAVE-IN OF BOREHOLE AT:	23.5	863.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. The driller set the screen for the observation well at 23.5 feet below the existing ground surface.

April 9, 2012

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BORING B104

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan
DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11
BORING METHOD: Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75
LOGGED BY: EFG **CHECKED BY:** MLB

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES	N-VALUE – O (10 20 30 40)	DRY DENSITY (pcf) – ■ (90 100 110 120) / MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)	SHEAR STRENGTH (KSF) (1 2 3 4)	REMARKS
			SURFACE ELEVATION: 888± FT						
888	0		Driller Reported About 10 inches of Sandy Topsoil- Brown						
887.2	0.8		Clayey Fine to Medium Sand- Some Silt- Trace Gravel- Brown- Moist- Loose (SC)	SS1	5 5 4	9			
886.0	2.0			SS2	4 4 4	8			
885	5		Silty Fine to Medium Sand- Trace Gravel- Occasional Clayey Sand Seams and Layers- Brown- Moist- Loose to Medium Dense (SM)	SS3	4 7 9	16			
880				SS4	5 6 5	11			
875.0	13.0			SS5	12 12 13	25			
875	10								
870	15		Silty Fine Sand- Trace Gravel and Clay- Frequent Sandy Silt Layers- Brown- Moist- Medium Dense to Very Dense (SM)	SS6	31 28 25	53 >>			
865	20			SS7	27 32 35	67 >>			
863.0	25.0		END OF BORING AT 25.0 FEET.						
860	25								
	30								

HAND PENETROMETER
TORVANE SHEAR
UNCONFINED COMPRESSION
VANE SHEAR (PEAK)
VANE SHEAR (REMOLDED)
TRIAXIAL (UU)

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

	DEPTH (FT)	ELEV (FT)
CAVE-IN OF BOREHOLE AT:	23.0	865.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. Groundwater was not encountered during or after the completion of drilling operations.

April 9, 2012

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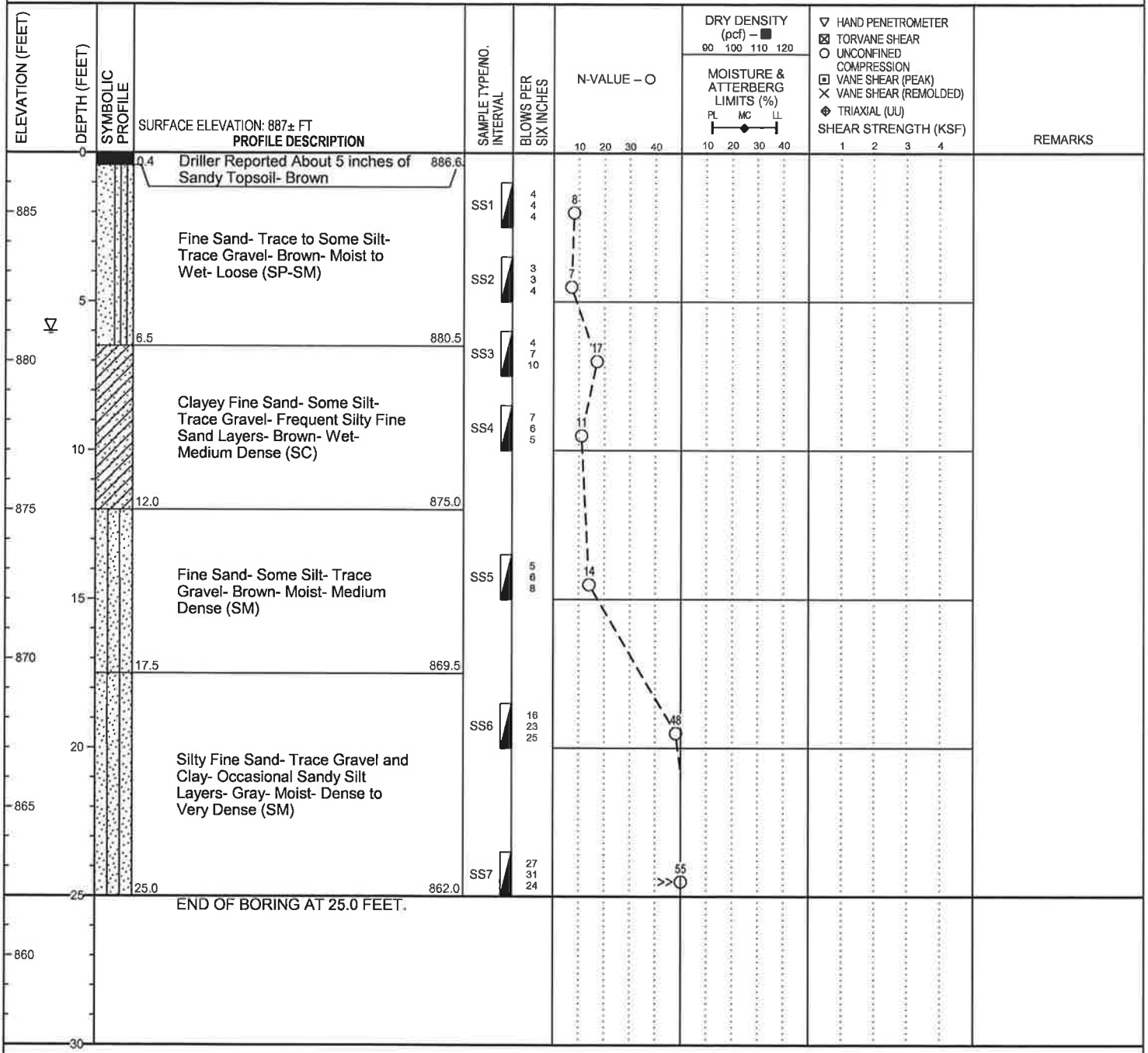
BORING B105

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan
DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11
BORING METHOD: Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75
LOGGED BY: EFG **CHECKED BY:** MLB



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	6.0	881.0
CAVE-IN OF BOREHOLE AT:	22.5	864.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. Groundwater was not encountered upon completion of drilling operations.

April 9, 2012

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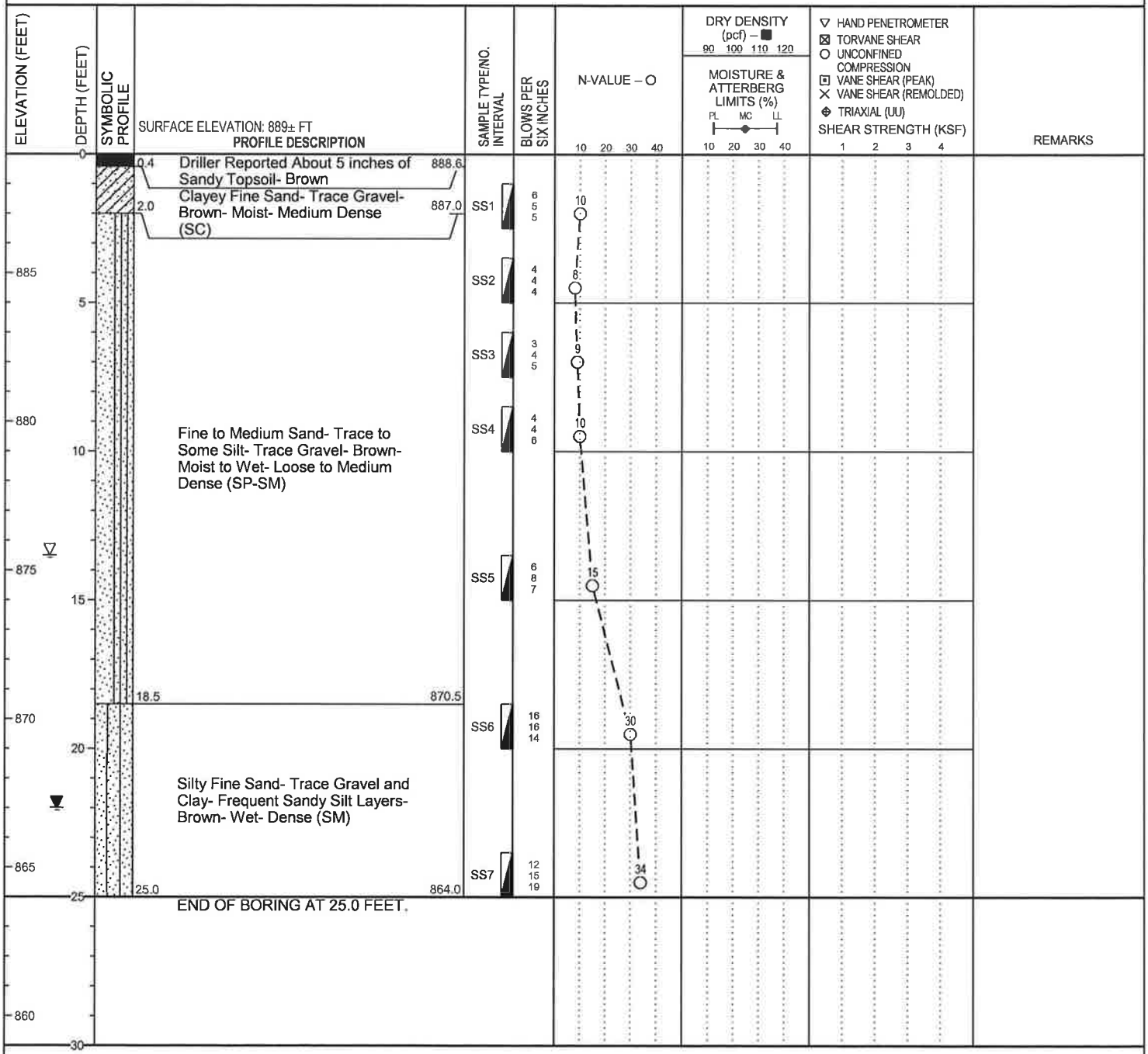
BORING B106

PROJECT NAME: Pine Creek Reservation Improvements
PROJECT NUMBER: 064709.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Athens Township, Michigan
DATE STARTED: 11/18/11 **COMPLETED:** 11/18/11
BORING METHOD: Hollow-stem Augers
DRILLER: TW-GLD **RIG NO.:** CME 75
LOGGED BY: EFG **CHECKED BY:** MLB



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	13.5	875.5
▼ AT END OF BORING:	22.0	867.0
CAVE-IN OF BOREHOLE AT:	23.5	865.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

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BORING B201

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB

SURFACE ELEVATION: 884 FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES
	0			3
		Fine to Medium Sand- Some Silt- Trace Gravel- Occasional Roots and Root Fibers- Dark Brown- Moist (SM/Topsoil)	LS1	2
	1.5	882.5		6
	2.5	Fine Sand- Some Silt- Trace Gravel- Brown- Moist (SM)		6
		881.5		7
880				11
	5	Fine Sand- Trace to Some Silt- Brown- Moist to Wet- Loose to Medium Dense (SP-SM)	LS2	20
				22
				19
				22
	7.0	877.0		28
		Silty Clay- Trace to Some Sand- Brown and Gray- Stiff (CL)	LS3	15
	8.0	876.0		28
875				38
	10		LS4	44
				28
				30
		Fine to Medium Sand- Trace to Some Silt- Occasional Silty Fine Sand Seams- Brown to Gray at 11 feet- Wet- Medium Dense (SP-SM)	LS5	
870				
	15		LS6	
			LS7	
865			LS8	
	20	20.0		
		864.0		
		END OF BORING AT 20.0 FEET.		
860				
	25			
855				
	30			

DYNAMIC CONE PENETROMETER (DCP) – O
10 20 30 40

DRY DENSITY (pcf) – ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
○ UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
× VANE SHEAR (REMOLDED)
◈ TRIAXIAL (UU)
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▼ AT END OF BORING:	5.5	878.5

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

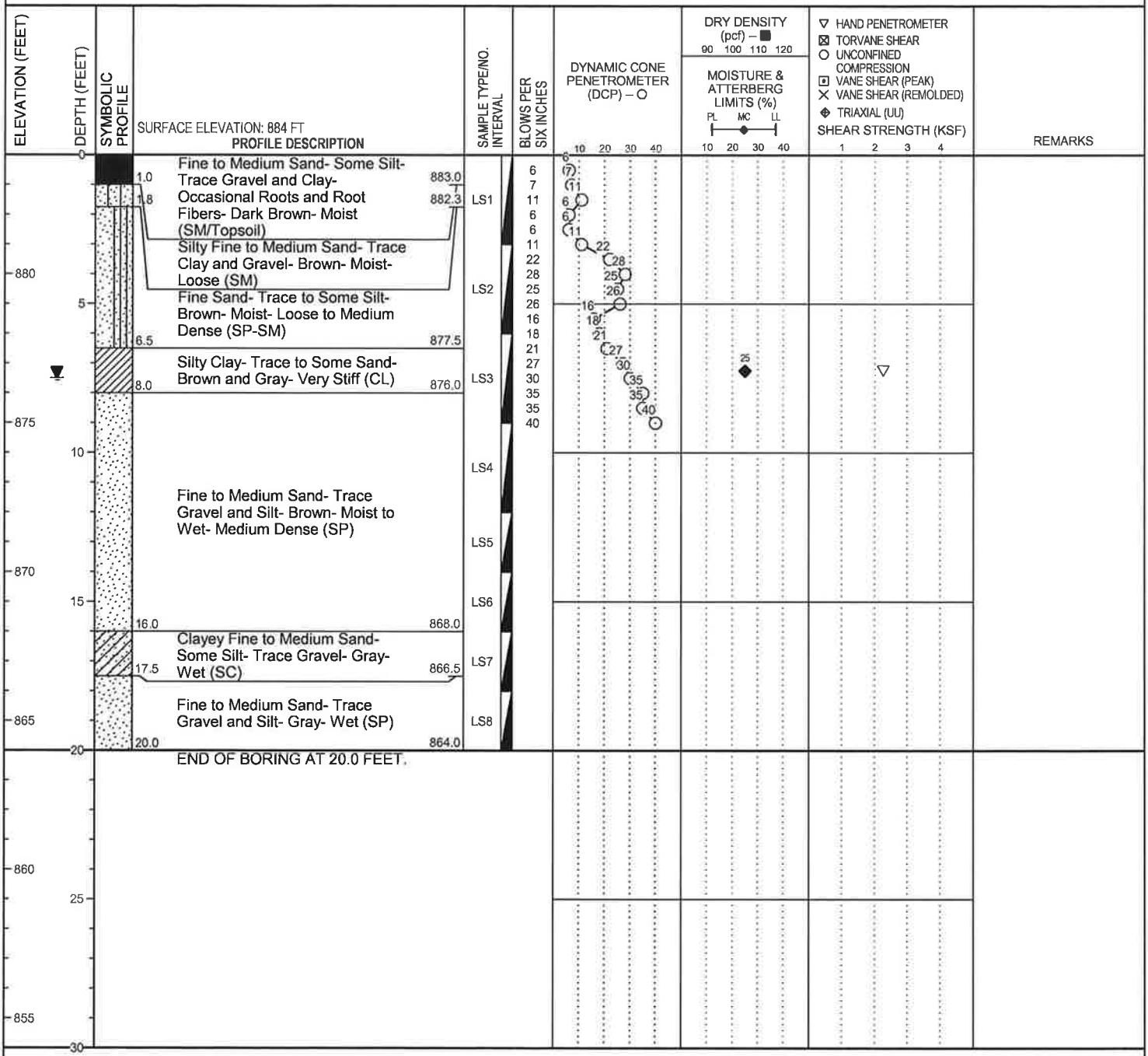
April 9, 2012

soil and materials engineers, inc.
michigan, ohio and indiana

BORING B202

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▼ AT END OF BORING:	7.5	876.5

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

soil and materials engineers, inc.
michigan, ohio and indiana

BORING B203

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	SURFACE ELEVATION: 884 FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES	DYNAMIC CONE PENETROMETER (DCP) – O	DRY DENSITY (pcf) – ■ MOISTURE & ATTERBERG LIMITS (%) PL MC LL	▽ HAND PENETROMETER ⊠ TORVANE SHEAR O UNCONFINED COMPRESSION ⊡ VANE SHEAR (PEAK) X VANE SHEAR (REMOLDED) ◈ TRIAXIAL (UU) SHEAR STRENGTH (KSF)	REMARKS
880	0		1.0 Silty Fine to Medium Sand- Trace Clay and Gravel- Occasional Roots and Root Fibers- Dark Brown- Moist (SM/Topsoil) 883.0	LS1	4 8 12 22 23 28	4, 8, 12, 22, 23, 28			
	5		5.0 Fine to Medium Sand- Some Silt- Trace Gravel- Occasional Roots and Root Fibers- Brown- Moist- Loose to Medium Dense (SP-SM) 879.0						
875			6.0 Silty Fine Sand- Brown- Moist (SM) 878.0	LS2			32	▽	
	10		7.5 Silty Clay- Trace to Some Sand- Brown- Very Stiff (CL) 876.5						
			10.0 Fine to Medium Sand- Trace Silt and Gravel- Brown- Moist to Wet (SP) 874.0	LS3					
870	15		END OF BORING AT 10.0 FEET.						
865	20								
860	25								
855	30								

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▼ AT END OF BORING:	8.5	875.5

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

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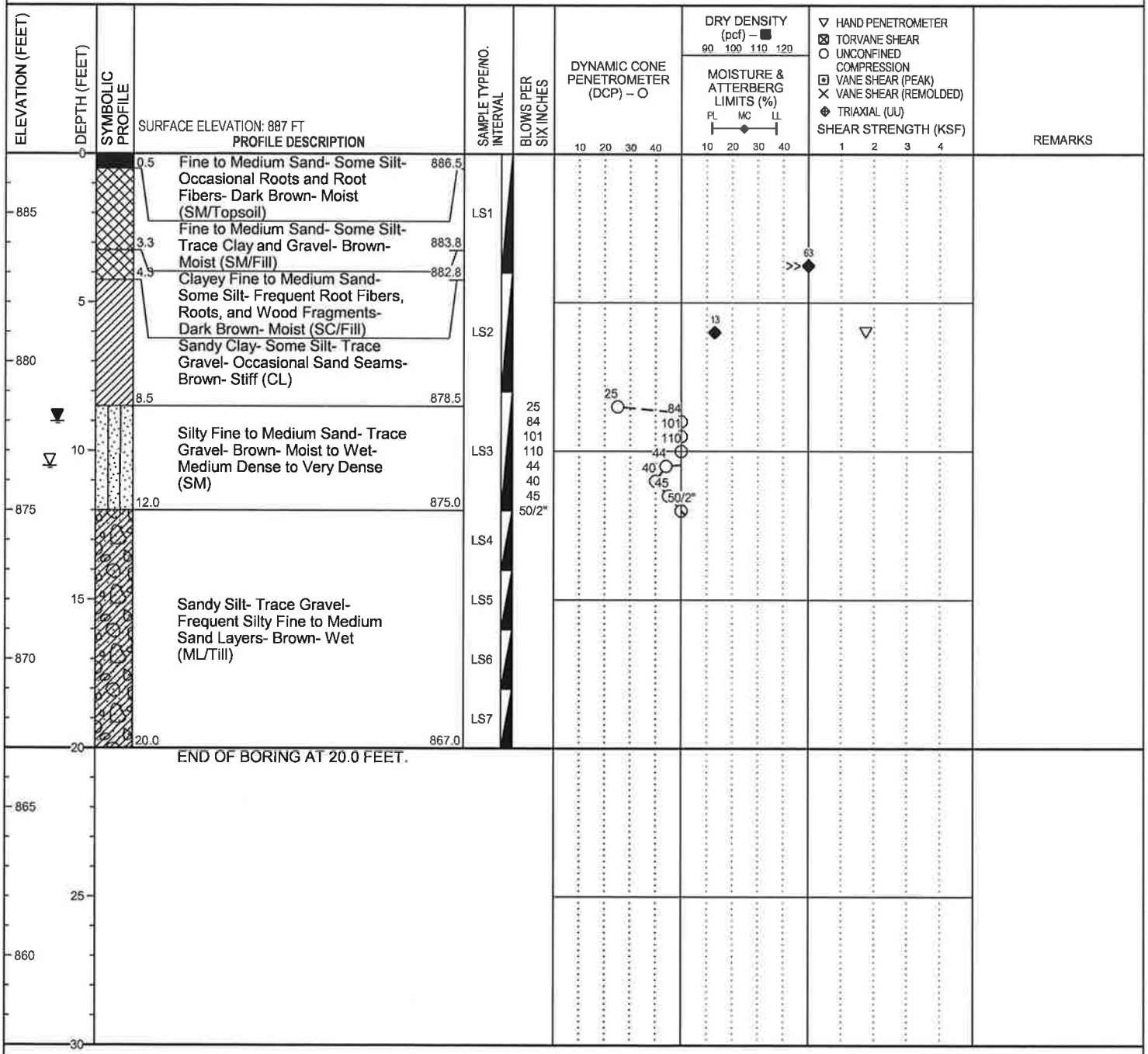
BORING B204

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	10.5	876.5
▼ AT END OF BORING:	9.0	878.0

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

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BORING B205

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB

SURFACE ELEVATION: 887 FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO.	BLOWS PER SIX INCHES
885	0 – 1.0	Silty Fine Sand- Trace Gravel and Clay- Occasional Roots and Root Fibers- Dark Brown- Moist (SM/Topsoil)	LS1	
	1.0 – 2.0	Fine Sand- Some Silt- Trace Gravel- Occasional Root Fibers- Brown- Moist (SM)		
	2.0 – 6.5	Fine to Medium Sand- Trace Silt and Gravel- Brown- Moist (SP)	LS2	
880	6.5 – 7.8	Sandy Clay- Some Silt- Trace Gravel- Brown- Stiff (CL)		
	7.8 – 11.0	Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist- Loose to Medium Dense (SP-SM)	LS3	17 15 12 10 40 50/4"
875 ▽	11.0 – 20.0	Sandy Silt- Trace Gravel- Frequent Silty Fine to Medium Sand Layers- Brown- Wet (ML/Till)	LS4 LS5 LS6	
870	20.0	END OF BORING AT 20.0 FEET.		
865				
860				

DYNAMIC CONE PENETROMETER (DCP) – O: 10 20 30 40

DRY DENSITY (pcf) – ■: 90 100 110 120

MOISTURE & ATTERBERG LIMITS (%): PL MC LL; 10 20 30 40

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
○ UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
× VANE SHEAR (REMOLDED)
⊕ TRIAXIAL (UU)
SHEAR STRENGTH (KSF): 1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	12.0	875.0
▼ AT END OF BORING:	11.0	876.0

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

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BORING B206

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB

SURFACE ELEVATION: 888.36 FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION		SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES
885	0	Fine to Medium Sand- Some Silt- Trace Gravel- Occasional Roots and Root Fibers- Dark Brown- Moist (SM/Topsoil)	887.4	LS1	
	1.0				
	3.3	Clayey Fine to Medium Sand- Some Silt- Trace Gravel- Occasional Roots and Root Fibers- Brown- Moist (SC)	885.1		
	4.3		884.1		
880	5	Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP-SM)		LS2	
		Fine to Medium Sand- Some Silt- Trace Gravel- Brown- Moist (SM)			
	9.5		878.9		
875	10	Sandy Silt- Trace Gravel- Occasional Silty Fine to Medium Sand Layers- Brown- Wet (ML/Till)		LS3	
				LS4	
	15			LS5	
				LS6	
	18.0		870.4		
870		END OF BORING AT 18.0 FEET.			
865	20				
860	25				
	30				

DYNAMIC CONE PENETROMETER (DCP) – O (10 20 30 40)

DRY DENSITY (pcf) – ■ (90 100 110 120)

MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)

▽ HAND PENETROMETER
⊠ TORVANE SHEAR
O UNCONFINED COMPRESSION
⊡ VANE SHEAR (PEAK)
X VANE SHEAR (REMOLDED)
⊕ TRIAXIAL (UU)
SHEAR STRENGTH (KSF) (1 2 3 4)

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▼ AT END OF BORING:	9.5	878.9

BACKFILL METHOD: Bentonite

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A groundwater monitoring well was installed upon completion of the boring. The screen was set at a depth between 6 feet and 11 feet from the surface.

April 9, 2012

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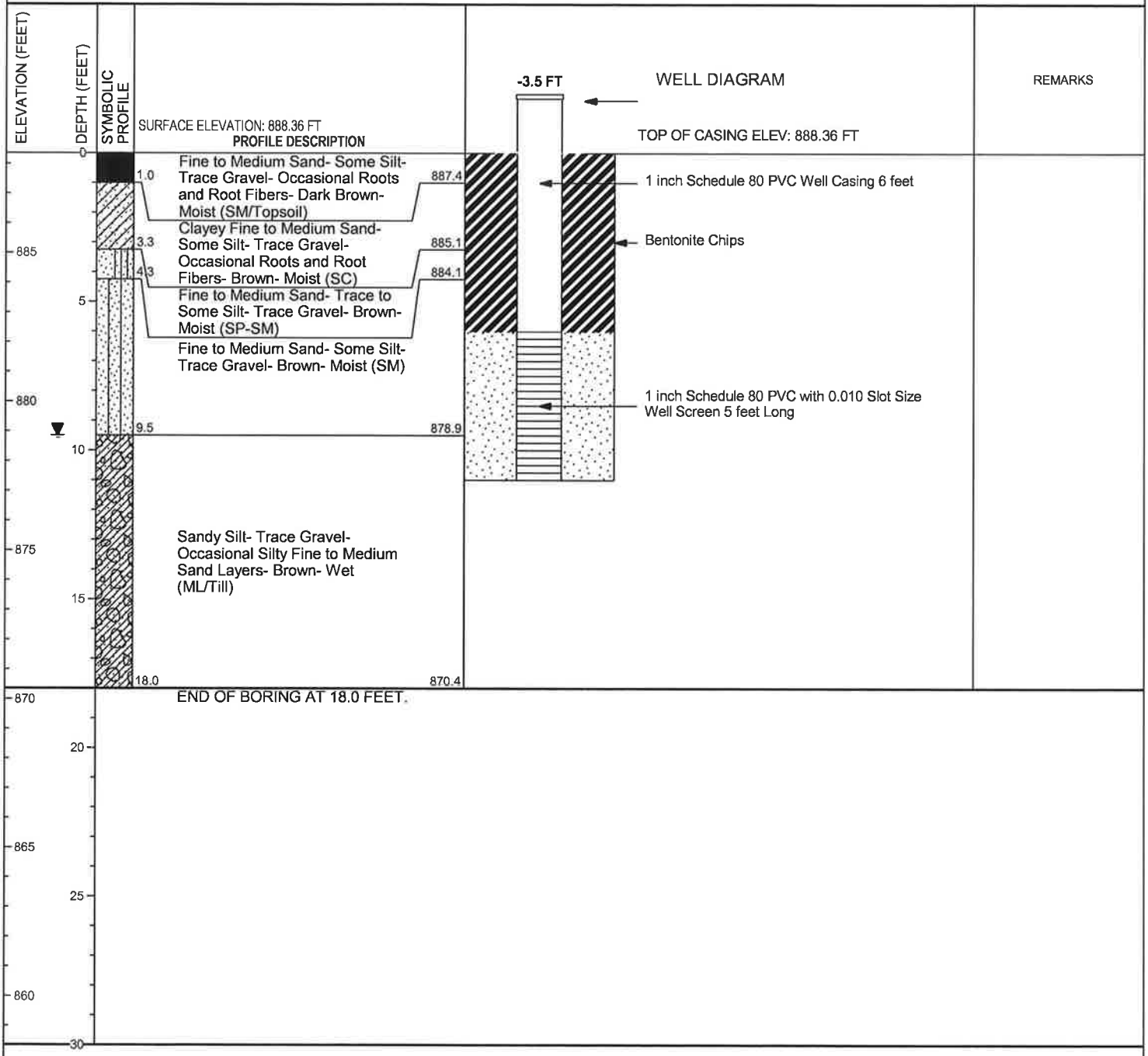
WELL W206

PROJECT NAME: Widoktadwen Projects
PROJECT NUMBER: 065228.00
CLIENT: The Skillman Corporation
PROJECT LOCATION: Fulton, Michigan

DATE STARTED: 3/16/12 **COMPLETED:** 3/16/12 **BORING METHOD:** Direct Push
FIELD REPRESENTATIVE: BM **EQUIPMENT:** ATV-Geoprobe **LOGGED BY:** AJR **CHECKED BY:** MLB



GROUNDWATER INFORMATION

	DEPTH (FT)	ELEV (FT)
▼ AT END OF BORING:	9.5	878.9

WELL WATER LEVEL DATA

DATE	DEPTH (FT)	ELEV (FT)
3/21/2012	10.5	877.86

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

April 9, 2012

APPENDIX B

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

GENERAL COMMENTS

LABORATORY TESTING PROCEDURES

Important Information About Your

Geotechnical Engineering Report

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

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of 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 equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

IIGER06045.0M

GENERAL COMMENTS

Basis of Geotechnical Report

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing by our office.

The discussions and recommendations submitted in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in the soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME should be contacted to reevaluate the recommendations of this report. SME should be retained to continue our services through construction to observe and evaluate the actual subsurface conditions relative to the recommendations made in this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs. The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

Review of Design Details, Plans, and Specifications

SME should be retained to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

Review of Report Information With Project Team

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

Field Verification of Geotechnical Conditions

SME should be retained to verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

Project Information for Contractor

This report and any future addenda or other reports regarding this site should be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor should promptly describe the nature and extent of the differing conditions in writing and SME should be notified so that we can verify those conditions. The construction contract should include provisions for dealing with differing conditions and contingency funds should be reserved for potential problems during earthwork and foundation construction. We would be pleased to assist you in developing the contract provisions based on our experience.

The contractor should be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site should be made available for review by bidders and the successful contractor.

Third Party Reliance/Reuse of This Report

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.

LABORATORY TESTING PROCEDURES

Visual Engineering Classification

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

Moisture Content

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110° C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

Hand Penetrometer Tests

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

Torvane Shear Tests

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

Loss-on-Ignition (Organic Content) Tests

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for 4 hours in a muffle furnace at a high temperature (approximately 440° C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

Atterberg Limits Tests

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a ½-inch thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool ½ inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content and the corresponding number of blows is plotted. The liquid limit is the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.

(Amended for NHBP)

CONTRACTOR'S BID FOR PUBLIC WORKS

PART I

(To be completed for all bids)
(Please type or print)

2012 Widoktadwen Projects
New Government Center - Bid Package #1

BIDDER (firm) _____

Address _____ P.O. Box _____

City/State/Zip _____

Telephone Number _____ Fax Number_____

Person to contact regarding this Bid_____

Pursuant to notices given, the undersigned offers to furnish labor and materials necessary to complete the construction work for:

_____

Insert Category No.(s) and Name(s)

of public works project, 2012 Widoktadwen Projects, New Government Center – Bid Package #1, in accordance with Plans and Specifications prepared by Wightman & Associates, Inc., 2303 Pipestone Rd., Benton Harbor, MI 49022, as follows:

BASE BID

For the sum of _____
(sum in words)

_____DOLLARS ($_____)
(sum in figures)

The undersigned acknowledges receipt of the following Addenda:

Receipt of Addenda No.(s) _____

PROPOSAL TIME

Bidder agrees that this Bid shall remain in force for a period of ninety (90) consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said ninety (90) consecutive calendar days shall be deemed rejected.

Attended pre-bid conference YES _____ NO _____

Has visited the jobsite YES _____ NO _____

The Bidder has reviewed the Guideline Schedule in Section 01 32 00 and the intent of the schedule can be met. _____ YES _____ NO

The undersigned further agrees to furnish a bond or certified check with this Bid for an amount specified in the Notice to Bidders. If Alternate Bids apply, submit a proposal for each in accordance with the Plans and Specifications.

ALTERNATE BIDS

A blank entry or an entry of "No Bid", "N/A", or similar entry on any Alternate will cause the bid to be rejected as non-responsive only if that Alternate is selected. If no change in the bid amount is required, indicate "No Change".

****MARK "ADD" OR "DEDUCT" FOR EACH ALTERNATE****

Alternate Bid No. 1 – Perimeter Drainage at Administration Building

Change the Base Bid the sum of_____
(sum in words)

_____DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

SECTION 01 12 00 - MULTIPLE CONTRACT SUMMARY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of the Prime Contract, including amended General Conditions and other Division 1 Specification Sections, apply to Work of this Section.

1.02 SUMMARY

A. The intent of this Section is to indicate the Work required by the Contractors and to provide information regarding the duties, responsibilities, and cooperation required by the Contractors, with similar requirements for the subcontractors and suppliers.

B. Owners right to maintain operations

C. Occupancy requirements

D. Work by Owner

E. Permits, fees, and notices

F. Labor and materials

G. Verifications of existing dimensions

H. Project security

I. Coordination of work

J. Time of commencement and completion

K. Schedule of contract responsibilities

1.03 WORK UNDER SEPARATE CONTRACTS

A. Prime Contracts are defined to include the following contracts described in the Schedule of Contract Responsibilities included hereinafter; and each is recognized to be a major part of the project, with Work to be performed concurrently and in close coordination with Work of other Prime Contracts.

B. The "Contract Documents," as defined in the General Conditions, include "the Drawings." Although Drawings are grouped and identified by classification of the Work, Contractors shall be responsible for their Work as specified herein and as indicated on the Drawings. Although the majority of the Drawings are "to scale,"

Contractors are directed to use indicated dimensions for determining material quantities and for other reasons. No additional monies will be allowed due to Contractors using "scaling instruments" to determine material quantities or for other reasons.

C. Separate prime contracts will be awarded as per the attached **"Schedule of Contract Responsibilities"** following this Section. Contractors shall include Work required by the Specifications and Drawings for each contract area defined in the Schedule.

D. Work for the complete construction of the Project will be under multiple prime contracts with the Owner. The Construction Management / Architectural Engineering Team will manage the construction of the Project.

E. Each Contractor shall be responsible for demolition and disposal of existing items relative to one's respective Contract.

1.04 ADMINISTRATIVE RESPONSIBILITIES OF PRIME CONTRACTORS AND CONSTRUCTION MANAGEMENT / ARCHITECTURAL ENGINEERING TEAM

A. The Construction Management / Architectural Engineering Team shall be responsible for the maintenance of the Construction Schedule and management of every phase of the Work.
   1. Each Contractor shall read the Specifications and Drawings for other separate Contracts for fixed equipment and the like to be incorporated or attached or built in to the Work; and familiarize oneself with the requirements and responsibilities of other Contracts to enable the required coordination and supervision.
   2. Each Contractor shall also familiarize oneself with other items to be incorporated into the Work including equipment and Work by the Owner.
   3. Each Contractor shall cooperate with the Construction Management / Architectural Engineering Team in notifying the Team when the Work is at a stage to require the services of other Contractors and shall notify the Construction Management / Architectural Engineering Team in the event that such other Contractors do not carry out their responsibilities in connection with such notification.

B. Contractors shall cooperate with and assist the Construction Management / Architectural Engineering Team in the preparation of construction progress and procedures, schedule of product deliveries, and their effect on the overall project progress and completion. Other Contractors shall cooperate in getting their Work and the Work of their subcontractors completed according to the schedule as prepared and maintained by the Construction Management / Architectural Engineering Team. Each Contractor shall immediately notify the Construction Management / Architectural Engineering Team of a delay in delivery of products or the scheduled date of completion that may affect the total progress of construction.

C. The Owner will furnish the topographical survey, either as a part of these Drawings or separately, giving the general topographical lines existing at the site and the property lines.

D. Contractors required to make connections to existing utilities, especially sewerage where gravity flow occurs, shall verify grades and locations at points of such connections and shall notify the Construction Management / Architectural Engineering Team of circumstances which would adversely affect the proper flow or connection to such facilities.

1.05 PRIME CONTRACTORS USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
   1. Owner Occupancy: Allow for Owner occupancy and use by the public.
   2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

B. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

106 OWNERS RIGHT TO MAINTAIN OPERATIONS

A. During the course of this Project, normal and customary functions and operations must be maintained. The Contract Documents are intended to define a strict separation between the Owner's activities and the activities of the construction project.

B. The Construction Manager / Architectural Engineering Team and Owner will not tolerate any visible or audible actions initiated or responded to by any employees of Contractors on this Project toward any staff members, guests or residents at the reservation. Violators shall be promptly removed from the site.

C. All communication with the Owner shall be through the Construction Management / Architectural Engineering Team.

D. Contractors must expend their best effort toward protection of the health, safety, and welfare of occupants on the Owner's property during the course of Work on this Project.

E. Contractors and Subcontractors shall be subject to such rules and regulations for the conduct of the Work as the Owner may establish. Employees shall be properly and

completely clothed while working. Bare torsos, legs and feet will not be allowed. Possession or consumption of alcoholic beverages or drugs, tobacco, and other noxious behavior on the site is strictly prohibited. Violators shall be promptly removed from the site.

1.07 OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: The Owner will occupy the site and surrounding buildings during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage of the site and surrounding buildings. Perform the Work so as not to interfere with the Owner's operations.

B. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
   1. The Construction Management / Architectural Engineering Team will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner occupancy.
   2. The Party which obtained the general building permit shall obtain a Certificate of Occupancy from local building officials prior to Owner occupancy.
   3. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions of the building.
   4. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions of the building.

1.08 WORK BY OWNER

A. The Owner intends to complete the following items of Work outside the provisions of these Contract Documents. Contractors shall not restrict or interfere with the Owner's right to the Project to accomplish this Work.
   1. Items which may be deleted from Contracts for Work as required by the Contract Documents.
   2. The purchase and supplying of certain materials as noted in the Project Manual, if applicable.

1.09 PERMITS, FEES, NOTICES AND INSPECTIONS

A. The Construction Manager will secure and pay for the general building permit. All Prime Contractors requiring a separate permit or license shall secure and pay for any required permits to complete their respective Bid Category Contract Work. Governmental fees and licenses necessary for the proper execution and completion of

Contractors' respective work, which are applicable, are the responsibility of each Contractor. Fees to relocate utilities on Owner's property shall be included in the bid of the Contractor doing the relocation.

1. Refer to ALLOWANCE Section for the use of Allowances to pay for direct cost of permit issuance.
2. Any State filing fees for plan approval are the responsibility of the Owner and will be paid by the Owner.

B. Utility Tie-Ins: Shall be arranged with local utility company(ies) and other involved parties for minimum interruption of service.

C. Shutdowns of existing systems shall be limited to minimum time required and scheduled with other involved parties. Provide 2 days written notice of shutdown to Construction Management / Architectural Engineering Team and Owner.

D. Inspections of installed work shall be performed by the governing authority as arranged for by the Contractor. Work shall not be covered until approved.

E. Each Contractor shall give notices and comply with laws, ordinances, rules, regulations, and orders of public authorities bearing on the performance of one's Work. If a Contractor observes that the Contract Documents are at variance therewith, Contractor shall promptly notify the Construction Management / Architectural Engineering Team in writing, and necessary changes shall be adjusted by appropriate notification. If a Contractor performs Work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Construction Management / Architectural Engineering team, Contractor shall assume full responsibility therefore and shall bear the costs attributable thereto.

F. Inspections shall be arranged by each Contractor for their respective work at times appropriate so as to not delay the schedule of Work. Document provided by Cornerstone Inspections Services titled "Inspection Scheduling Process" is included in this section.

1.10 LABOR AND MATERIALS

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

B. Each Contractor shall enforce strict discipline and good order among one's employees or other persons carrying out Work of one's Contract and shall not permit employment of unfit person or persons or anyone not skilled in the respective task assigned.

C. Contractors will be required to conform to the requirements of the Sex Offender Registration and Notification Act (SORNA).

i. SORNA Code, Chapter 5, Sec. 5.01 (E): "A sex offender must register with the Tribal Police of the Nottawaseppi Huron Band of the Potawatomi if he/she is employed by the tribe in any capacity or otherwise is employed within the lands subject to the jurisdiction of the tribe."
ii. SORNA Code, Chapter 5, Sec. 5.02 (A): "Within 3 business days of establishing a residence, commencing employment, or becoming a student on lands subject to the jurisdiction of the tribe, a sex offender must appear in person to register with the Nottawaseppi Huron Band of the Potawatomi Tribal Police."

D. ID Badges will be issued by The Skillman Corporation upon receipt of verification from the Contractor that the employee/subcontractor employee or independent contractor has a satisfactory record to work on the Project.

1.11 VERIFICATIONS OF EXISTING DIMENSIONS

A. When verification of existing dimensions is required, the Contractor requiring said verification for the construction or fabrication of material shall be the Contractor responsible for the procurement of the field information.

1.12 PROJECT SECURITY

A. The Construction Management / Architectural Engineering team shall be responsible for developing and conducting a security program, specifically oriented for the protection of preventing damage, or loss to the entire project site and other property at the site or adjacent thereto. This shall be acceptable to the Owner, and shall remain in effect through Substantial Completion of the Project.

1.13 SCHEDULE OF CONTRACT RESPONSIBILITIES – SCOPE

A. Contractors shall submit their proposals based on the Work included under each contract area as listed herein. Include Work necessary for a complete project, as shown on the Drawings and called for in the Specifications.

B. Questions concerning the phasing or "Schedule of Contract Responsibilities" should be directed to the Construction Management / Architectural Engineering Team, who will be the interpreter and be responsible for this Schedule of Contract Responsibilities and Contract Breakdown, prior to submitting proposals and during construction.

C. The requirements of Division 1 are a part of the Work of each and every contract area. The Contractor for any one contract area shall be familiar with the Work and requirements of all other contract areas.

D. Certain Specification Sections describe Work to be performed under several contract areas. Provide Work of this nature as required for each contract area whether or not enumerated in the Schedule of Contract Responsibilities.

E. The following contract areas are broken down by Specifications Section conforming basically to the CSI format.

F. The Drawings and Specifications as furnished for each of the Contracts is for the convenience of the Contractor in preparing a proposal for this Project. However, each Contractor is responsible to review the complete set of Drawings and Specifications to assure that Work required to be installed to complete said phase of the Work is included in said proposal. This "Schedule of Contract Responsibilities" is a definition of the work as it is to be bid in separate contracts. Where a specific item of Work is not defined, but is normally inherent to a trade, or is included in the scope of the applicable technical revision, it will be the responsibility of that Contractor to include the Work in said proposal.

G. This "Schedule of Contract Responsibilities" is to aid each Contractor in defining the Scope of Work to be included in one's proposal. However, omissions from this "Schedule of Responsibilities" do not relieve the Contractor from including in said proposal that Work which will be required to complete said Contract. Each Contractor should read the "Schedule of Contract Responsibilities" completely to familiarize oneself with the Work of other Contractors that may have Work in adjacent areas and to coordinate the interfacing problems that may occur as the work is assembled and constructed.

H. Where specific Work is to be completed under a particular phase of the Project and the Work is wholly or partially completed by other trades because of the type of work involved or jurisdictional trade agreements, the Contractor will be responsible to subcontract the Work as necessary to complete the Work included in said Contract. No delay in the Work will be allowed due to the failure of the Contractor to subcontract related work required by jurisdictional trade agreements.

1.14 COORDINATION OF WORK

A. Each Contractor is responsible to coordinate one's Work with the Work of other trades and other Contractors and requirements. The Contractor must make space allowances for Work of other Contractors, provide necessary openings where indicated or implied by the Drawings and Specifications. Each Contractor is responsible to protect one's own Work.

1.15 TIME OF COMMENCEMENT AND COMPLETION

A. The Contractor shall commence work within ten (10) days after being notified in writing to proceed and shall complete the Work within the time limitations established in the Form of Agreement.

1. It is anticipated that construction will start within (10) calendar days after receipt of bids.
2. Construction shall be complete within (263) consecutive calendar days, or earlier, after Notice to Proceed.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 SCHEDULE OF CONTRACT RESPONSIBILITIES

A. PROVIDED BY THE OWNER THROUGH THE CONSTRUCTION MANAGER / ARCHITECTURAL ENGINEERING TEAM

Section	01 32 00	Schedules and Reports
Section	01 35 10	LEED Requirements
Section	01 45 10	Testing Laboratory Services
Section	01 51 10	Temporary Electricity, Lighting and Warning Systems
Section	01 52 60	Rubbish Container
Section	01 59 10	Project Office
Section	01 74 19	Construction Waste Management and Disposal

B. PROVIDED BY ALL CONTRACTORS AS APPLICABLE

Section	01 12 00	Multiple Contract Summary
Section	01 21 00	Allowances
Section	01 25 00	Contract Modification Procedures
Section	01 28 00	Schedule of Values
Section	01 29 00	Application for Payment
Section	01 31 00	Project Meetings
Section	01 32 00	Schedules and Reports
Section	01 33 00	Submittal Procedures
Section	01 35 10	LEED Requirements
Section	01 40 00	Quality Requirements
Section	01 45 10	Testing Laboratory Services (Paragraph 1.05)
Section	01 50 50	Temporary Facilities and Controls
Section	01 53 30	Barricades
Section	01 54 60	Environment Protection
Section	01 54 80	Utility Protection
Section	01 56 30	Water Control
Section	01 56 90	Housekeeping & Safety
Section	01 59 20	Offices and Sheds
Section	01 60 00	Product Requirements
Section	01 72 00	Field Engineering
Section	01 72 50	Work Layout
Section	01 77 00	Contract Closeout

C. PROVIDED BY DESIGNATED CONTRACTORS

Section	01 51 50	Temporary Water
Section	01 51 60	Temporary Sanitary Facilities
Section	01 51 80	Temporary Fire Protection
Section	01 52 10	Construction Aids and Temporary Enclosures
Section	01 53 10	Fences (Temporary Security)
Section	01 53 20	Tree and Plant Protection
Section	01 53 30	Barricades
Section	01 55 00	Access Roads and Parking Areas
Section	01 56 20	Dust Control
Section	01 56 80	Erosion Control

3.03 BID CATEGORIES

A. BID CATEGORY NO. 1 – Sitework & Utilities

General Requirements in Paragraph 3.01.B above.

Section	01 21 00	Allowances
Section	01 23 00	Alternatives
Section	01 35 10	LEED Requirements
Section	01 51 60	Temporary Sanitary Facilities
Section	01 52 10	Construction Aids and Temporary Enclosures
Section	01 53 10	Fences (Temporary Security)
Section	01 53 20	Tree and Plant Protection
Section	01 53 30	Barricades
Section	01 55 00	Access Roads and Parking Areas
Section	01 56 20	Dust Control
Section	01 56 80	Erosion Control
Section	01 72 00	Field Engineering
Section	02 40 00	Demolition
Section	07 92 00	Joint Sealers
Section	31 00 00	Earthwork
Section	31 10 00	Site Clearing
Section	31 50 00	Excavation Support and Protection
Section	32 12 16	Asphaltic Paving
Section	32 17 00	Paving Specialties
Section	33 05 30	Sanitary Manholes, and Structures
Section	33 30 00	Sanitary Sewer
Section	33 40 00	Storm Drain

CLARIFICATIONS:

1. Shop drawing and submittal procurement is critical in order to maintain contract work sequence. It is the responsibility of each Contractor to procure these items in a manner to meet Schedule Requirements.

2. Contractor shall review all Contract Drawings, Details and other Bid

Category Work to ensure extent and entire Scope of Work required for a complete installation; refer to respective technical specifications and drawings. Advise Construction Management / Architectural Engineering Team, in writing, regarding any ambiguities, omissions, errors and/or discrepancies.

3. Note this project is registered with the US Green Building Council in an effort to achieve LEED Silver Certification. This places responsibility on all parties involved in the construction of this project to implement protocols that will foster obtaining certain LEED credits as outlined in this specification. Contractors will be required to recycle materials on site, provide LEED relevant documentation, and follow protocols as indicated, but not limited to the project Specifications, Construction Documents, and Contracts.

4. Include ALL required and applicable permits, fees and taps.

5. Include all soil erosion and sedimentation control measures, installations and maintenance.

6. Prepare entire site to sub grade and substrate elevations.

7. Perform site clearing, grubbing and site demolition as required. Restore disturbed areas/surfaces, including construction lay down, temporary parking areas and office areas. Trees to be removed by owner.

8. Provide additional fill and top soil, if required to achieve finished grades.

9. Distribute topsoil and grade topsoil to required elevations.

10. Install all site utilities within 5'-0" of the building and coordinate with other Bid Category Contractors for location and final termination to facilitate final connection by respective Contractor.

11. Exclude construction materials testing, by Construction Manager / Architectural Engineering Team.

12. Perform all demolition as required to facilitate installation of specified system, assembly or product and repair existing surrounding surface(s) as required, to receive new finishes. Refer to specifications, plan notes, and existing conditions.

13. Provide all joint sealants for your Bid Category work.

14. Contractor shall procure and pay for all required permits, fees and inspections related to bid category.

15. Allowance includes $10,000 for stone access drive at Construction Management / Architectural Engineering Team's discretion.

B. BID CATEGORY NO. 2 – Concrete

General Requirements in Paragraph 3.01.B above.

Section	01 21 00	Allowances
Section	01 23 00	Alternatives
Section	01 51 50	Temporary Water
Section	01 51 80	Temporary Fire Protection
Section	01 72 00	Field Engineering
Section	02 58 00	Underground Ducts
Section	03 30 00	Cast-In-Place Concrete
Section	07 14 00	Fluid Applied Waterproofing
Section	07 19 00	Water Repellents
Section	07 21 00	Thermal Insulation
Section	07 92 00	Joint Sealers
Section	22 05 00	Common Work Results for Plumbing
Section	22 05 23	Basic Material And Methods
Section	22 07 00	Plumbing Insulation And Support
Section	22 11 13	Facility Water Distribution Piping
Section	22 11 16	Domestic Water And Condensate Piping
Section	22 13 16	Sanitary Waste And Vent Piping And Specialties
Section	22 40 00	Plumbing Fixtures
Section	32 13 13	Concrete Paving

CLARIFICATIONS:

1. The procurement of shop drawings and submittals is critical in order to maintain contract work sequence. It is the responsibility of each Contractor to procure these items in a manner to meet Schedule Requirements.

2. Contractor shall review all Contract Drawings, Details and other Bid Category Work to ensure extent and entire Scope of Work required for a complete installation; refer to respective technical specifications and drawings. Advise Construction Management / Architectural Engineering Team, in writing, regarding any ambiguities, omissions, errors and/or discrepancies.

3. Note this project is registered with the US Green Building Council in an effort to achieve LEED Silver Certification. This places responsibility on all parties involved in the construction of this project to implement protocols that will foster obtaining certain LEED credits as outlined in this specification. Contractors will be required to recycle materials on site, provide LEED relevant documentation, and follow protocols as indicated, but not limited to the project Specifications, Construction Documents, and Contracts.

4. Contractor shall procure and pay for all required permits, fees and inspections related to bid category.

5. Provide all sleeves for your work, coordinate installation as required.

6. Patch and seal penetrations through walls, floors, and ceilings, etc.

7. Perform ALL work related to concrete footings and foundation walls; concrete sidewalks, curbs, and gutters; concrete housekeeping pads and utility enclosure; slabs on grade and slabs on steel deck; and site concrete work including, but not limited to excavation, backfilling, fill and drainage material and compacting work as required for proper installation and performance of concrete. Provide and install respective reinforcing, accessories, footing drains and fabric, underdrains and damp proofing.

8. Provide all joint sealants for your Bid Category work.

C. BID CATEGORY NO. 3 – Masonry

General Requirements in Paragraph 3.01.B above.

Section	01 21 00	Allowances
Section	01 23 00	Alternatives
Section	01 72 00	Field Engineering
Section	04 20 00	Unit Masonry
Section	07 14 00	Fluid Applied Waterproofing
Section	07 19 00	Water Repellents
Section	07 21 00	Thermal Insulation
Section	07 60 00	Flashing and Sheet Metal
Section	07 92 00	Joint Sealers

CLARIFICATIONS:

1. The procurement of shop drawings and submittals is critical in order to maintain contract work sequence. It is the responsibility of each Contractor to procure these items in a manner to meet Schedule Requirements.

2. Contractor shall review all Contract Drawings, Details and other Bid Category Work to ensure extent and entire Scope of Work required for a complete installation; refer to respective technical specifications and drawings. Advise Construction Management / Architectural Engineering Team, in writing, regarding any ambiguities, omissions, errors and/or discrepancies.

3. Note this project is registered with the US Green Building Council in an effort to achieve LEED Silver Certification. This places responsibility on all parties involved in the construction of this project to implement protocols that will foster obtaining certain LEED credits as outlined in this specification. Contractors will be required to recycle materials on site,

provide LEED relevant documentation, and follow protocols as indicated, but not limited to the project Specifications, Construction Documents, and Contracts.

4. Contractor shall procure and pay for all required permits, fees and inspections related to bid category.

5. Provide all sleeves for your work, coordinate installation as required.

6. Patch and seal penetrations through walls, floors, and ceilings, etc.

7. Provide all joint sealants for your Bid Category work.

D. BID CATEGORY NO. 4 – Structural Steel

General Requirements in Paragraph 3.01.B above.

Section	01 21 00	Allowances
Section	01 23 00	Alternatives
Section	01 72 00	Field Engineering
Section	05 12 00	Structural Steel Framing
Section	05 21 00	Steel Joist Framing
Section	05 31 00	Steel Decking
Section	05 50 00	Metal Fabrications

CLARIFICATIONS:

1. The procurement of shop drawings and submittals is critical in order to maintain contract work sequence. It is the responsibility of each Contractor to procure these items in a manner to meet Schedule Requirements.

2. Contractor shall review all Contract Drawings, Details and other Bid Category Work to ensure extent and entire Scope of Work required for a complete installation; refer to respective technical specifications and drawings. Advise Construction Management / Architectural Engineering Team, in writing, regarding any ambiguities, omissions, errors and/or discrepancies.

3. Note this project is registered with the US Green Building Council in an effort to achieve LEED Silver Certification. This places responsibility on all parties involved in the construction of this project to implement protocols that will foster obtaining certain LEED credits as outlined in this specification. Contractors will be required to recycle materials on site, provide LEED relevant documentation, and follow protocols as indicated, but not limited to the project Specifications, Construction Documents, and Contracts.

4. Contractor shall procure and pay for all required permits, fees and inspections.

END OF SECTION 01 12 00

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including amended General Conditions and other Division-1 Specification Sections, apply to work of this Section.

1.02 REQUIREMENTS INCLUDED

A. The Specifications contain Allowances for particular items, methods of construction, quantities of materials, labor for certain items and these stated Allowances shall be included in the total lump sum bid price.
   1. Should the final amounts as determined from actual costs vary from these stated Allowances, the Contract price will be adjusted by Change Order as stated in the Conditions of the Contract.
   2. Under no circumstances shall work exceeding the stated Allowance amounts, proceed without a properly executed Change Order.

B. A "Schedule of Allowances" showing amounts included in each prime Contract Sum, is included at the end of this Section.

C. Product/Materials/Permitting Allowance: At the earliest feasible date after award of Contract, advise the Construction Management / Architectural Engineering Team of scheduled date when final selection and purchase of each product or system described by each Allowance must be accomplished in order to avoid delays in performance of the Work.
   1. As requested by the Construction Management / Architectural Engineering Team, obtain and submit proposals for the work of each Allowance for use in making final selection; include recommendations for selection which are relevant to the proper performance of the Work.
   2. Purchase products and systems as specifically selected (in writing) by the Construction Management / Architectural Engineering Team.
   3. Submit proposals and recommendations, for purchase of products or systems of Allowances, in form specified for Change Orders.
   4. When requested, submit a substantiated survey of quantities of materials, as shown in the "Schedule of Values", revised where necessary, and corresponding with Change Order quantities.
   5. Amount of Allowance includes:
      a. Net cost of product
      b. Delivery to the site
      c. Applicable taxes

6. In addition to amount of Allowance, include in Bid, for inclusion in Contract Sum, Contractor's costs for:
    a. Handling at site, including unloading, uncrating and storage
    b. Protection from elements, from damage
    c. Labor, installation and finishing
    d. Other expenses (e.g., testing, adjusting and balancing) required to complete installation
    e. Overhead and profit

D. Contingency Allowance: Contingency allowance shall be used only as directed for Owner's purposes. Proposal shall be submitted by Contractor for work requested in format similar to that required for Change Orders. Compensation to the Contractor for work requested utilizing this Allowance shall be for only Contractor's costs as defined by Paragraph 7.3.6 of the General Conditions, except no compensation shall be allowed for overhead and profit. At time of Project closeout, unused amounts remaining in contingency allowance shall be credited to Owner by Change Order.

PART 2 - PRODUCTS, (not used)

PART 3 - EXECUTION

3.01 PRODUCT ALLOWANCE (not used)

3.02 CONTINGENCY ALLOWANCES

A. Allowance No. 1
Bid Category No. 1 – Site & Utilities

1. Allow a lump sum of **$ 30,000** for additional work required but not indicated on Drawings or reasonably anticipated.

B. Allowance No. 2
Bid Category No. 3 – Concrete Work

1. Allow a lump sum of **$ 10,000** for additional work required but not indicated on Drawings or reasonably anticipated.

C. Allowance No. 3
Bid Category No. 3 – Masonry

1. Allow a lump sum of **$ 10,000** for additional work required but not indicated on Drawings or reasonably anticipated.

D. Allowance No. 4
Bid Category No 4 – Structural Steel

1. Allow a lump sum of **$20,000** for additional work required but not included on Drawings or reasonably anticipated.

END OF SECTION 01 21 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including amended General Conditions and other Division-1 Specification Sections, apply to work of this Section.

1.02 PURPOSE

A. The Bids for the Alternates described herein are required in order for the Owner to obtain information necessary for the proper consideration of the Project in its entirety.

1.03 ALTERNATES

A. Definitions: Alternates are defined as alternate products, materials, equipment, installations or systems for the Work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in the Owner-Contractor Agreement to either supplement or displace corresponding basic requirements of Contract Documents. Alternates may or may not substantially change scope and general character of the Work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

1.04 SCHEDULE OF ALTERNATES

A. ALTERNATE NO. 1: State the cost to provide all work related to increasing drainage around the existing Administration Building, including but not limited to footing drawings and lead, cleaning and waterproofing the basement exterior, and restoring the existing construction and site related to the extents of the work, per the drawings.

END OF SECTION 01 23 00

SECTION 01 31 00 - PROJECT MEETINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The Work of this Section shall be included as a part of the Contract Documents of each Contractor on this Project. Where such Work applies to only one Contractor, it shall be defined as to which Contractor the Work belongs.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
   1. Pre-construction conferences.
   2. Pre-installation conferences.
   3. Progress meetings.

B. Each Contractor or awardee shall be required to have present at each of the following project meetings a representative acceptable to the Construction Management / Architectural Engineering Team. The designated representative shall have sufficient authority and knowledge to make decisions for the Contractor he/she is representing on matters affecting this Project.

C. Contractor or representative unable to attend a specified meeting shall have an acceptable alternate representative designated or **shall notify the Construction Management / Architectural Engineering Team not less than 3 days prior to date of meeting.**

1.03 PRE-CONSTRUCTION/PARTNERING CONFERENCE

A. The purpose of this meeting is to develop a cohesive Project Team between the Prime Contractors, Owner, and Construction Management / Architectural Engineering Team out of what might potentially be an adversarial relationship. This facilitated conference is designed to establish common goals, communication strategies, dispute resolution practices and problem solving mechanisms within the context of the contract documents.

B. Team Members should have their principal project personnel attend the conference, to include the Project Manager, Site Superintendent/Field Personnel and key office staff involved in payment applications and closeout documentation. Prime Contractors shall require their principal subcontractors to attend.

C. Agenda: Discuss items of significance that could affect progress, including the following:
   1. Discussion of construction schedule.
   2. Critical work sequencing.

3. Designation of responsible personnel.
4. Processing of field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of shop drawings, product data and samples.
8. Procedures for maintaining record documents.
9. Use of premises:
    a. Office and storage areas.
    b. Owner's requirements.
10. Major equipment deliveries and priorities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.
14. Working hours.

D. The Construction Management / Architectural Engineering Team shall prepare minutes and record significant discussions and agreements and disagreements of each conference, and the approved schedule. The Construction Management / Architectural Engineering Team shall promptly distribute the record of the meeting to everyone concerned

1.04 PRE-INSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the project site before each construction activity that requires coordination with other construction, and as outlined in the technical sections.

B. Attendees: The Prime Contractor, installing foreman, and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.

C. The Construction Management / Architectural Engineering Team shall schedule conferences.

D. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following:

1. Scope of Activity
    a. Prime Contractor and Superintendent Responsible for activity
    b. Subcontractor and foreman.
    c. Scope of work.
    d. Contract Documents.
    e. Related Change Orders, pending or potential changes
    f. Purchases.
    g. Deliveries.

h. Shop drawings, product data, and quality control samples.
i. Review of mock up.

2. Activity Schedule
   a. Duration
   b. Proposed starting date
   c. Required predecessors and successor activities
   d. Required Manpower (crew size).
   e. Does activity as planned meet schedule intent?
   f. Overtime/Weekend considerations to maintain schedule.

3. Special Conditions
   a. Weather limitations.
   b. Manufacturer's recommendations.
   c. Warranty requirements.
   d. Compatibility of materials.
   e. Acceptability of substrates.
   f. Temporary facilities.
   g. Space and access limitations.
   h. Governing regulations.
   i. Protection.
   j. Possible conflicts

4. Safety and Housekeeping
   a. Review of Precautions related to activity
   b. Competent Person
   c. OSHA requirements
   d. Housekeeping considerations and standards.

5. Closeout Requirements
   a. Inspecting and testing requirements.
   b. Required performance results.
   c. Recording requirements.
   d. Punch List Expectations (Zero Punch List)
   e. Warranty
   f. Extra Stock
   g. Owner Training

E. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

F. Contractors shall review and comply with required pre-installation conferences outlined in the Contract Documents. (See individual Specification Sections.)

1.05 PROGRESS MEETINGS

A. Progress meetings will be established on a biweekly basis, or more frequent as determined by the Construction Management / Architectural Engineering Team, to review the progress of construction, possible delays, problems, and projected construction activity. The Contractor is required to attend progress meetings. Contractors failing to be represented at project meetings, when specifically requested, will be taken into consideration when payment applications are being considered for approval by the Construction Management / Architectural Engineering Team. **Contractor shall be charged $250.00 for each unexcused absence, from meetings in which they are requested to attend, as determined by the Construction Management / Architectural Engineering Team**. A deduct Change Order for these changes will be issued prior to contract closeout. This in no way relieves the Contractor(s) for coordination due to lack of attendance.

1. Notice of said meetings will originate in the office of the Construction Management / Architectural Engineering Team.
2. Contractor shall require his/her principal subcontractors to attend.
3. The progress and schedule of each involved Contractor shall be coordinated at this meeting. The representatives of the Contractor(s) present shall have the authority to change the Contractors' work schedule or authorize work with the consent of the Construction Management / Architectural Engineering Team. If the Contractor fails to attend this meeting, it shall be his/her responsibility to obtain the information discussed at the meeting. Meeting notes and the most current construction schedule will be in the office of the Construction Management / Architectural Engineering Team. Attendance at these meetings is required for Contractors' payments.
4. Coordinate dates of meetings with preparation of payment requests.

B. Minimum Agenda shall be as follows:

1. Review work progress since last meeting.
2. Note field observations, problems, and decisions.
3. Identify problems which impede planned progress.
4. Review off-site fabrication problems.
5. Develop corrective measure and procedures to regain planned schedule.
6. Revise construction schedule as indicated.
7. Plan progress during next work period.
8. Review submittal schedules, expedite as required to maintain schedule.
   a. Tracking of material deliveries.
9. Maintaining of quality and work standards.
10. Review changes proposed by Owner for effect on construction schedule and effect on completion schedule.
11. Complete other current business.
12. Documentation of information for payment requests.

1.06 Pre-Closeout Meeting

A. When the work or designated portion thereof is 70% substantially complete, by billing, the Construction Management / Architectural Engineering Team will conduct a Pre-Closeout Meeting.

B. Minimum agenda will be to review Section 01 77 00– Contract Closeout.
   1. O & M Manuals – Required at 75% Completion
   2. Prerequisites to Substantial Completion
   3. Wrap-up all RFP's
   4. Punch Lists
   5. Record Drawings
   6. Start to Finalize Change Orders
   7. Extra Stock
   8. Owner's Training
   9. Final Payment Application

C. Contractors are to attend this " Progress Meeting" for Pre-Closeout.

END OF SECTION 01 31 00

SECTION 01 51 10 - TEMPORARY ELECTRICITY, LIGHTING & WARNING SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including amended General Conditions and other Division-1 Specification Sections, apply to work of this Section.

1.02 TEMPORARY ELECTRICAL AND LIGHTING

A. Provide temporary electric service to each of the areas of construction and provide temporary lighting and power to be used by all trades for all construction work.
   1. Maintain the temporary system, relocate the system as required for construction progress, and remove system at completion of Project.

B. The energy cost of power consumed during construction shall be paid by the OWNER.

C. Provide minimum of one 100-200 AMP, 120/240 volt, single phase grounded system for temporary light and power distribution as determined and required.
   1. The service amperage shall be adequate for the construction of the Project and the testing of the permanent equipment.
   2. Temporary lighting shall be sufficient to enable all trades to complete their work. Minimum lighting requirements are one (1) 150 watt A-21 lamp installed per room or in areas over 300 square feet, stringers shall be installed in rows twenty feet (20') apart with lights spaced fifteen feet (15') apart on the stringers. No more than eight (8) lamps shall be installed on any 20 amp circuit. Lamps for temporary lighting shall be provided and maintained by the contractor at his expense. Every temporary lamp outlet must be properly lamped throughout construction; dark or burned-out lamps shall be immediately replaced. Number 12 wire may be used for temporary lighting circuits.
      a. Additional lighting required to perform the work, and as required by applicable laws, is specified in Section 01 50 50.
   3. Temporary power shall be sufficient to enable all trades to complete their work. A minimum of a two gang, duplex grounded convenience outlet having 3-wire grounded type receptacles shall be installed within seventy-five feet (75') of outside walls and one hundred fifty feet (150') spacing in any direction within the building. They shall be installed in such a manner that a 100' extension cord connection can reach any part of the building, including enclosed areas, such as offices.
   4. In addition to the above temporary power and lighting, provide and subsequently remove circuits for:

a. Temporary safety lighting and security lighting. Security lights to work at all hours of darkness; safety lighting shall be continuous during working hours.
b. Testing and checking permanent equipment.

5. Complete temporary electrical system, including lighting, power outlets, wiring, etc. shall comply with all federal regulations as issued by the Department of Labor dealing with safety and health for construction projects, and any portions of state and local safety and health regulations that are more stringent.

D. Contractors requiring power requirements other than the above, will make arrangements with the Construction Management / Architectural Engineering Team and pay for any such electrical services. Such services are listed below but not limited to the examples shown:
1. Power to temporary offices.
2. Special power for masonry saws or mixers, floor grinders, floor sanders, welders, etc.
3. Cost of power for temporary electric heat.

1.03 TEMPORARY WARNING SYSTEMS

A. Construction Management / Architectural Engineering Team shall provide temporary emergency systems, warning systems, and fire alarm systems in accordance with MIOSHA standards. Construction Management / Architectural Engineering Team shall provide alarm stations consisting of an area plan showing alarm station locations, escape routes to nearby exits, and a distinctive alarm capable of being heard above ambient noise levels. Remove temporary systems after permanent systems are operational.

END OF SECTION 01 51 10

SECTION 05 50 00

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide the following metal fabrications:

1. Loose bearing and leveling plates.
2. Loose steel lintels.
3. Shelf and relieving angles.
4. Steel framing and supports for countertops.
5. Edgings.
6. Pipe guards.

1.2 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Ferrous Materials:

1. Steel Plates, Shapes and Bars: ASTM A 36.
2. Rolled Steel Floor Plates: ASTM A 786.
3. Steel Tubing: ASTM A 500 or A 501.
4. Uncoated Structural Steel Sheet: ASTM A 611 or A 570.
5. Uncoated Steel Sheet: ASTM A 366 or A 569.
6. Galvanized Steel Sheet: ASTM A 653, G90.
7. Steel Pipe, Black Finish: ASTM A 53.
8. Steel Pipe, Galvanized Finish: ASTM A 53.
9. Gray Iron Castings: ASTM A 48, Class 30.
10. Malleable Iron Castings: ASTM A 47, Grade 32510.
11. Reinforcing Bars: ASTM A 615, Grade 60.
12. Brackets, Flanges, and Anchors: Cast or formed metal.
13. Concrete Inserts: Threaded or wedge type.
14. Welding Rods and Bare Electrodes: AWS specifications.
15. Zinc-Coating: Hot-dip galvanized coating for materials in exterior assemblies or exterior walls.

B. Stainless Steel Materials:

1. Bar Stock: ASTM A 276, Type 302 or 304.
2. Plate: ASTM A 666, Type 302 or 304.
3. Rolled-Steel Floor Plate: ASTM A 786.

C. Aluminum Materials:

1. Extruded Bars and Shapes: ASTM B 221 aluminum alloy.
2. Rolled Tread Plate: ASTM B 632 aluminum alloy.
3. Rivets: ASTM B 316, aluminum alloy.

4. Sheet for Expanded Aluminum Grating: ASTM B 209.
5. Fasteners: ASTM A 153.
6. Finish: Mill finish.
7. Finish: Clear anodized.

D. Bronze Materials:

1. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36, Alloy UNS No. C28000.
2. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 84400 (leaded semi red brass).

E. Fasteners:

1. Bolts and Nuts: Hexagon head type, ASTM A 307, Grade A.
2. Lag Bolts: Square head, FS FF-B-561.
3. Machine Screws: Cadmium plated steel, FS FF-S-92.
4. Wood Screws: Flat head carbon steel, FS FF-S-111.
5. Plain Washers: Round carbon steel, FS FF-W-92.
6. Drilled-In Expansion Anchors: FS FF-S-325.
7. Toggle Bolts: Tumble-wing type, FS FF-B-588.
8. Lock Washers: Spring type carbon steel, FS FF-W-84.
9. Zinc-Coating: Fasteners in exterior assemblies or exterior walls.

F. Auxiliary Materials:

1. Nonshrink Metallic Grout: ASTM C 1107**.**
2. Nonshrink Nonmetallic Grout: ASTM C 1107.
3. Interior Anchoring Cement: Hydraulic expansion cement.
4. Exterior/Interior Anchoring Cement: Erosion-resistant hydraulic expansion cement.
5. Shop Primer: Fast curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79, compatible with topcoats.
6. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
7. Galvanizing Repair Paint: SSPC - Paint 20.
8. Bituminous Paint: Asphalt mastic, SSPC - Paint 12.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Take field measurements prior to preparation of shop drawings and fabrication. Do not delay job; allow for cutting and fitting if field measurement not practical.

B. Form work true to line with sharp angles and edges. Weld continuously, grind flush and make smooth on exposed surfaces.

C. Install work plumb and level with hairline joints and ground flush welds.

D. Lintels: Provide sizes indicated with 8" bearing at each end.

E. Touch-up damaged coatings with shop primer and galvanize repair paint.

F. Paint items scheduled in accordance with painting section.

END OF SECTION