PROJECT MANUAL

Parking Lot Resurfacing:
Bay Arenac ISD
4155 Monitor Rd Bay City
Bay City, MI 48706.

Prepared For: **Bay Arenac ISD**
4155 Monitor Rd Bay City
Bay City, MI 48706.

Prepared By:

TSSF ARCHITECTS, INC.
ARCHITECTS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

Project Number: **2604**

Date: **BID SET MARCH 18, 2024**

SECTION 00010
PROJECT INFORMATION

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

A. Project Name: Bay Arenac ISD Parking Lot Resurfacing, located at: 4155 Monitor Rd Bay City, MI 48706.

B. Architect's Project Number: 2511

C. The Owner, hereinafter referred to as Owner: Bay Arenac ISD

D. Owner's Project Manager: Ken Kerr.
1. Department: Supervisor, Building Operations.
2. Address: 4155 Monitor Rd..
3. City, State, Zip: Bay City, MI 48706.
4. Phone/Fax: 989-667-3619.
5. E-mail: kerrk@baisd.net.

1.02 PROJECT DESCRIPTION

A. Summary Project Description: Parking Lot Resurfacing

B. Contract Scope: Construction and demolition.

C. Contract Terms: Lump sum (fixed price, stipulated sum).

1.03 PROJECT CONSULTANTS

A. The Architect, hereinafter referred to as Architect: TSSF Architects Inc..
1. Address: 122 N. Washington Ave.
2. City, State, Zip: Saginaw, MI 48607.
3. Phone/Fax: 989-752-7311.
4. E-mail: chris@tssfinc.com.

1.04 PROCUREMENT TIMETABLE

A. The Owner reserves the right to change the schedule or terminate the entire procurement process at any time.

1.05 PROCUREMENT DOCUMENTS

A. Availability of Documents: Complete sets of procurement documents may be obtained:
1. From Owner at the Project Manager's address listed above.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

DOCUMENT 00011

TABLE OF CONTENTS

BAY ARENAC ISD PARKING LOT RESURFACING

SERIES 0 – DOCUMENTS

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 2 – SITE CONSTRUCTION

END OF SECTION

SECTION 00030

INVITATION FOR BIDS

Sealed proposals will be received for the parking lot resurfacing for Bay Arenac ISD, located in Monitor Township, Michigan.

Bids are to be addressed to: Attention of Ken Kerr, Building Operations Supervisor, Bay Arenac ISD Parking Lot Resurfacing, and will be received until 2:00 p.m. local time on April 1,2026 at.

BAY ARENAC ISD
4228 BAY-ARENAC DRIVE
BAY CITY, MI 48706.

at which time and place the bids will be privately opened. A single combined proposal will be received for all the work of the trades.

Bidders were emailed all documents of the Contract Documents & Specifications.

A bid security in the form of a certified check, cashier's check or surety company bond in an amount of at least 5% of the total bid payable to the Owner must accompany the proposal as security for the acceptance and execution of the contract.

A performance bond and labor and material payment bonds, as described in the Instructions to Bidders are required in the amounts as detailed in Section 00610 - Performance Bond, Labor and Material Bond.

The bid documents, including plans and specifications, are on file at the following locations:

ARCHITECT'S OFFICE
TSSF Architects, Inc.
122 N. Washington Ave.
Saginaw, Michigan 48607
(989) 752-7311

The Owner reserves the right to reject any or all bids, to waive irregularities and/or informalities and to make an award in any manner deemed in their best interest. Proposals shall be made on the forms provided as part of the Bidding Documents. Failure to use the provided form, will result in a bid rejection.

All other requirements for bidding are detailed in the Instructions to Bidders.

SECTION 00100

INSTRUCTIONS TO BIDDERS

SUMMARY

1.01 SEE AIA A701, INSTRUCTIONS TO BIDDERS AVAILABLE AT THE OFFICE OF THE ARCHITECT.

INVITATION

2.01 BID SUBMISSION

A. Bids signed and under seal, executed, and dated will be received at the office of the Owner at 4228 Bay-Arenac Dr. Bay City, MI 48706 at the shipping and receiving doors before 2:00 p.m. local standard time on 04/01/2025.

B. Offers submitted after the above time will be returned to the bidder unopened.

C. Along with the Bids, the Familiar Disclosure Form, Assurances and Certifications, and Affidavit of Compliance – Iran Economic Sanctions Act should be signed and completed with the submittal. These formas are behind the Bid Form section 00500 in the specifications.

2.02 WAGE RATES

A. Davis-Bacon prevailing wage requirements are required on this project. Submission of weekly payroll with statement of compliance with original signature during the project are encouraged.

2.03 CONTRACT TIME

A. Identify Contract Time in the Bid Form. The completion date in the Agreement shall be the Contract Time added to the commencement date.

BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 INQUIRIES/ADDENDA

A. Direct questions to Chris Bohinski, email; chris@tssfinc.com.

B. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.

C. Verbal answers are not binding on any party.

SITE ASSESSMENT

4.01 SITE EXAMINATION

A. Examine the project site before submitting a bid.

4.02 BID ENCLOSURES/REQUIREMENTS

5.01 SECURITY DEPOSIT

A. Bids shall be accompanied by a security deposit as follows:
   1. Bid Bond of a sum no less than 5 percent of the Bid Amount on AIA A310 Bid Bond Form.

B. Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the principal (Contractor) and surety.

C. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bond(s) by the accepted bidder.

D. Include the cost of bid security in the Bid Amount.

E. If no contract is awarded, all security deposits will be returned.

OFFER ACCEPTANCE/REJECTION

6.01 DURATION OF OFFER

A. Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

6.02 ACCEPTANCE OF OFFER

A. Owner reserves the right to accept or reject any or all offers.

B. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written Bid Acceptance.

END OF SECTION

SECTION 00150

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

PART I GENERAL

1.1 INTRODUCTION

The following supplements modify, change, delete from or add to the instructions to Bidders, AIA Document A701, 2007 Edition. Where any Article of the Instructions to Bidders is modified or any paragraph, subparagraph or clause thereof is modified by these supplements, the unaltered provisions of that Article, paragraph, subparagraph, or clause shall remain in effect.

1.2 BIDDING

A. Bids are to be addressed to and will be received at the place, until the time, and in the manner indicated in the Advertisement for Bids. Proposals received after the time specified will be returned unopened.

B. Bids shall be submitted as stated on proposal forms furnished by the Architect and shall be completely executed in strict accordance with the bid documents. No telephonic or telegraphic bids will be accepted.

D. Prior to the execution of the contract, the successful General Contractor shall furnish certificate of insurance covering the work, as detailed in Section 00650, Insurance Requirements.

E. Interpretation of plans and specifications: Any person contemplating submittal of a bid for the proposed contract who is in doubt about the true meaning of any part of the plans and/or specifications must submit an interpretation request to the Architect, structural, mechanical or electrical engineers designed. It is intended that any item of work or material shown on plans or listed in specifications shall be the responsibility of the respective contractors to provide and install, with the exception of specific items indicated to be provided by one contractor and installed by a different contractor. Questions regarding responsibility shall be clarified prior to bid date.

F. All bidders are expected to respond to any alternate listed on the proposal form. Bidders are also advised that only those alternates listed on the proposal form will be accepted for consideration in determining the low bidder, and that bidder-originated alternates will not be considered at this time. In general, the order in which alternates are listed on the proposal form is the order in which they will be evaluated for acceptance.

G. Bidders may inspect the existing facilities by making arrangements with the Owner.

H. Any addenda issued prior to receipt of bids are to be included in the proposal and will become part of the contract. Bidders must acknowledge on bid form all addenda received. Failure of a bidder to receive any addendum shall not release the bidder from any obligations under his bid, provided said addendum was sent by U.S. mail or United Parcel Service to the address furnished by the bidder.

I. Sales Tax: The state sales tax in the State of Michigan is applicable to the construction of this project.

J. Bidders will note that any salvage from operations under this contract shall belong to the Owner, with the Owner having discretion as to retention of any or all salvage material. It

shall be the responsibility of the respective contractors to remove and dispose of offsite, as they see fit, any salvage not desired by the Owner. Contractors and subcontractors shall check with Owner or Architect for allocation of any salvage items.

K. Reference copies of the following documents are on file at the office of TSSF Architects, Inc.; 122 N. Washington Ave.; Saginaw, Michigan 48607:

PERFORMANCE BOND, AIA DOCUMENT A311

LABOR AND MATERIAL PAYMENT BOND, AIA DOCUMENT A311

L. The Owner reserves the right to accept or reject any or all proposals or to waive any informalities therein.

M. The Owner will evaluate proposals and make an award within 60 days of bid due date, during which time bids may not be withdrawn by bidders.

N. Post bid interviews will be performed prior to the award.

N. The Owner prefers that American made products be used where possible.

O. No site walkthrough is scheduled. Contractors are invited to visit the site on their own schedule

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

Familial Disclosure Form

The undersigned, the owner or authorized officer of _____ (the "Proposer"), pursuant to the familial disclosure requirement provided in the Bay-Arenac Intermediate School District Request of Proposals and Specifications, hereby represent and warrant, except as provided below, that no familial relationship exist between bidder(s) or any employee of BAISD, and any member of the Board of Education of the School District or the Superintendent of the Schools or the LEAs listed in the Request for Proposal.

List any Familial Relationships:

_____

_____

_____

Dated: _____ PROPOSER: _____

By: _____

Its: _____

State of Michigan)
County of _____)ss:

This instrument was acknowledged before me on the _____ day of _____, 20__, by _____.

_____(Signature)
_____(Printed)
Notary Public, _____ County, Michigan
My Commission Expires: _____
Acting in the County of _____

Assurances and Certifications

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion

The prospective contractor certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded for from participating in this transaction by any Federal department of agency. Where the prospective contractor is unable to certify to any of the statements in this certification, such prospective contractor shall attach an explanation to this proposal.

Certification Regarding Nondiscrimination Under Federally and State Assisted Programs

The applicant herby agrees that it will comply with all federal and Michigan laws and regulations prohibiting discrimination and, in accordance therewith, no person, on the basis of race, color, religion, national origin or ancestry, age, sex, marital status or handicap, shall be discriminated against, excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination in any program or activity for which it is responsible or for which it receives financial assistance from the U.S. Department of Education or the MDE.

Assurance Regarding Access to Records and Financial Statements

The applicant hereby assures that it will provide the pass-through entity, i.e., Bay-Arenac ISD, and auditors with access to the records and financial statements as necessary for the pass-through entity to comply with Section 400 (d) (4) of the U.S. Department of Education Compliance Supplement for A-133.

Iran Economic Sanctions Act

The prospective contractor certifies that its organization, by submission of this proposal, is not an Iran Linked Business. Please refer to the "Iran Economic Sanction Act" Public Act 517 for clarifications or questions. Bay-Arenac ISD as a Michigan public entity is required to follow Public Act 517 of 2012.

Dated: _____ PROPOSER: _____

By: _____

Its: _____

State of Michigan)
County of _____)ss:

This instrument was acknowledged before me on the _____ day of _____, 20__, by _____.

_____(Signature)
_____(Printed)
Notary Public, _____ County, Michigan
My Commission Expires: _____
Acting in the County of _____

Affidavit of Compliance – Iran Economic Sanctions Act

All Bids shall be accompanied by a sworn statement disclosing any Iran Linked Business relationship that exists within the owners, including its officers, director, and employees.

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to Michigan Public Act No . 517 of 2012, the "Iran Linked Business" requirement provided in the BAISD Consortium Universal Service Fund Request for Proposals hereby represents and warrants that the bidder, including its officers, directors and employees, is not and " Iran Linked Business" within the meaning of the applicable Public Act, and that in the event bidder is awarded a contract as a result of this RFP, the contract. The bidder further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than $250,000 or 2 times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of the District investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on future Requests for Proposals (RFPs) for three (3) years from the date that it is determined that the person has submitted the false certification.

There is not an "Iran Linked Business" that exists within the bidder and/or owner, officers, directors and employees.

Bidder: _____
(Company Name)

By: _____
(Signature)

Its: _____
(Title)

This instrument was acknowledged before me, a Notary Public, in and for

_____ County, on this _____ day of _____ 20_____

_____ SS:
(Notary Public Signature)

My commission Expires: _____

Acting in the County of: _____

SOIL EVALUATION & PAVEMENT DESIGN
AT
BAY-ARENAC ISD CAREER CENTER
MONITOR TOWNSHIP, BAY COUNTY, MICHIGAN

November 14, 2025

Prepared For:

Bay-Arenac Intermediate School District
4228 Two Mile Road
Bay City, Michigan 48706

Prepared By:

Snyder & Staley Engineering, PLC
824 Tittabawassee Road
Saginaw, Michigan 48604

Project Number 25-433-207

TABLE OF CONTENTS

APPENDIX

I. INTRODUCTION

We have completed the requested soil evaluation and pavement design for the reconstruction of the Bay-Arenac Intermediate School District Career Center parking areas and drives located in Monitor Charter Township of Bay County, Michigan. This report presents the results of our evaluation, our interpretation of the soil and groundwater conditions at the soil boring locations, and our geotechnical recommendations for design and construction of the proposed development. Our evaluation was performed under the direction of a registered Professional Engineer in the State of Michigan.

A. Site and Project Descriptions

The existing Bay-Arenac Intermediate School District Educational Service Center is located at 4155 Monitor Road in Monitor Charter Township of Bay County, Michigan. There are two separate asphalt pavement access drives leading to the building from Monitor Road. The east most access drive leads to the North East asphalt pavement parking lot and the west most access drive leads to the main parking lot to the northwest, west and south of the building. At this time, the extent of, type of or timeline of pavement rehabilitation for the existing parking lots and drives is unknown. At this time, the extent of, type of or timeline of pavement rehabilitation for the existing parking lots and drives is unknown. We assume the rehabilitation could be a total reconstruction or a mill of asphalt pavement and replacement or a combination of both across the site.

B. General

The recommendations submitted in this report have been based on the available soil boring information and the preliminary design details furnished for the proposed development. Any revisions in the noted location or design details for the proposed structures should be brought to our immediate attention so we may evaluate the extent to which our recommendations may be impacted by the changes. When final plans and specifications are available, we should be given the opportunity to review them to verify our understanding of the anticipated project and to verify our recommendations have been properly interpreted. The conclusions, recommendations and considerations presented herein have been based on the information obtained from the twenty soil borings preformed at this site. This report does not reflect changes in subsurface conditions that may occur between these soil boring locations. If significant variations from our reported subsurface conditions are noted during construction, we should be notified immediately to determine if modifications to our recommendations are needed. We have strived to conduct this soil evaluation in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of this project. No other warranties, implied or expressed, are made. The recommendations presented herein are intended solely for the use of the Bay-Arenac Intermediate School District Career Center and their design consultants in evaluating this site for the specific development being proposed.

II. DESRIPTION OF INVESTIGATION PROCEDURES

A. Field Operations

A total of twenty-eight (28) soil borings were performed for this investigation and all borings extended to depths of about 5 feet below the existing pavement surface. Three soil borings, labeled as B1 through B3, were drilled in the existing access drive to the west of the building, one soil boring, labeled as B28, was drilled in the existing access drive to the east of the building. Two soil borings, labeled as B4 and B5, were drilled in the existing parking lot to the northwest of the building, four soil borings, labeled B6 through B9, were drilled in the existing parking lot to the west of the building. Eleven borings, labeled as B10 through B20, were drilled in the existing parking lot to the south of the building. Seven borings, labeled as B21 through B27, were drilled in the existing parking lot to the northeast of the building. The approximate soil boring locations are shown on the appended diagram. Snyder & Staley Engineering, PLC personnel staked the soil borings in the field using normal taping procedures and existing landmarks as reference points. Ground surface elevations at the soil boring locations were not determined at this time.

The soil borings were performed by AFT Drilling of Standish, Michigan using a trailer mounted rotary drill rig in general accordance with the American Society of Testing and Materials (ASTM) Standard D-1586 (Penetration Test and Split-Barrel Sampling of Soils) using hollow-stem, continuous flight augers to advance the holes. The sampling intervals, standard penetration test results (N-values), groundwater observations and other pertinent field information are shown on the Soil Boring Logs included in the Appendix of this report. The symbols and notations used on the boring logs are defined on the General Notes, also appended to this report.

B. Laboratory Testing

The soil samples were sealed in labeled glass jars in the field and returned to the laboratory where they were visually classified by an experienced soils engineer in general accordance with the Unified Soil Classification System (USCS) (ASTM Standard D-2487). These descriptions appear on the appended Soil Boring Logs. A chart that describes the USCS group symbols, which appear in parenthesis after the soil descriptions, is also included in the Appendix of this report.

Additionally, selected representative portions of the cohesive soil samples were subjected to moisture content and calibrated hand penetrometer tests. The moisture content of a soil sample is the ratio of the weight of water in the sample to the oven-dried weight of the soil, as determined by ASTM Standard D-2216, expressed as a percentage. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated by measuring the resistance of the soil to penetration of a calibrated spring-loaded cylinder. The capacity of the hand penetrometer is 4½ tons per square foot (tsf). Results of these laboratory tests are shown on the appended Soil Boring Logs.

III. DESCRIPTION OF SUBSURFACE CONDITIONS

The soil profile description and groundwater observations discussed herein are intended to provide a brief and general summary of the typical subsurface conditions encountered at this site. For a more detailed description of the soil and groundwater conditions encountered at the respective boring locations, please refer to the attached Soil Boring Logs and Soil Boring Location Diagram. The stratification lines of the boring logs are intended to indicate a general transition between soil types and the actual transition may vary between boring locations.

A. Soil Conditions

A relatively consistent soil profile was encountered in each of the soil borings performed for this evaluation. Each major component of the generalized soil profile observed at this site, beginning from the ground surface, is described below:

Soil Group 1 – Pavement Materials

At the surface of these twenty-eight soil borings, the driller reported 2 to 4½ inches of asphalt pavement over laying 4 to 16 inches of asphalt millings and/or dense graded, crushed limestone aggregate basecourse materials.

Soil Group 2 – Fine Sand Fill (SP)

Beneath the asphalt pavement and basecourse materials, 3 to 14 inches of fine sand deposits were encountered.

Soil Group 3 – Silty Clay (CL)

Underlying the pavement materials at all three soil borings, silty clay layers were observed to the explored depth of all the borings. Hand penetrometer unconfined compressive strength values ranged between 1 and 4½ tsf. Corresponding moisture content values were between 10 and 31 percent.

B. Groundwater Observations

No groundwater seepage was observed during the drilling and/or sampling operations. Upon completion of the drilling operations and removal of the augers from the ground, the bore holes were observed to have collapsed at various depths with no visible signs of groundwater seepage. All boreholes were backfilled with natural soils upon their completion.

In granular (sandy) soils, a relatively short amount of time is usually required for the water level in an open bore hole to stabilize with the prevailing hydrostatic groundwater level. Due to the inherent low permeability of cohesive (clayey) soils, however, a long time may be required for the water level in an open bore hole to stabilize with the long-term hydrostatic groundwater level. Where granular soil layers overlie cohesive soils, as was generally the case at this site, a complicated subsurface hydraulic condition, possibly involving perched groundwater accumulations, multiple aquifers, or artesian flow may arise. For this reason, the short-term groundwater level measurements recorded in our borings, as noted above, may not accurately depict the true position of the hydrostatic groundwater level at this site. To do so, in our opinion, would require installation and monitoring of several piezometers.

Perched groundwater accumulations may develop when surface runoff infiltrates the more pervious sandy soil layers and/or intrusions situated above or within a mass of less permeable clayey or silty soil. These groundwater accumulations may then become temporarily trapped or "perched" above the long-term hydrostatic groundwater level. For this reason, perched groundwater accumulations are generally more prevalent during the spring months after the snow melts or following periods of prolonged precipitation and they may essentially disappear during extended dry periods. Conditions appear to be favorable for perched groundwater accumulations to develop at varying depths at this site given the presence of the granular soil deposits situated above the silty clay layers as encountered in our soil borings.

In our experience, however, the depth at which the soil color changes from brown to gray often marks the approximate position of the hydrostatic groundwater level in cohesive soils. This color change, which results from the lack of soil oxidization below the hydrostatic groundwater level, was not noted in any of our borings. On this basis and from our experience in this area, we estimate the long-term hydrostatic groundwater level to be below the explored depth of our borings.

The long-term hydrostatic groundwater level at this site should be expected to fluctuate with variations in precipitation, evaporation and surface runoff. The groundwater levels indicated on the soil borings and discussed above represent the conditions at the time the measurements were taken.

IV. CONCLUSIONS AND RECOMMENDATIONS

The recommendations submitted herein have been based upon available soil boring and site plan information and the preliminary design details for the proposed development. If our understanding of the project, as previously described, is inaccurate or if any revisions in the plans are made, they should be brought to our attention so we may determine if changes to our recommendations are required. Likewise, if significant variations in the reported subsurface conditions are encountered during construction, we should be notified immediately.

A. Pavement Subgrade Preparation

In those areas where the existing pavement is to be reconstructed, the existing pavement asphalt and underlying millings and/or aggregate materials shall be removed. This millings and pavement materials can be stockpiled on site to be reused in the pavement reconstruction. Then the underlying subgrade materials shall be removed as required to establish the new pavement cross section depth as recommended below. After new pavement section subgrade elevations have been established, we anticipate the exposed subgrade soils will consist of the loose to medium dense, fine sands or stiff to hard, silty clays as encountered in our soil borings. We believe these soils will be suitable for support of the proposed pavement following proper subgrade preparation activities as described herein.

In those areas where the existing asphalt pavement is to be milled off the surface and new asphalt pavement materials placed, the exposed subbase materials shall be also prepared as described below depending on the type of soil the exposed subgrade exhibits.

Prior to placing any pavement materials on these exposed granular subgrade materials, it will be necessary for the top 12 inches of exposed granular subgrade soils to be thoroughly compacted with a large vibratory drum roller to at least 95 percent of the maximum dry density determined by ASTM Standard D-1557 (Modified Proctor). A sufficient number of field density tests should be performed to verify proper compaction is achieved. The purpose of this procedure is to uniformly compact the surface and locate any soft areas that may require stabilization. Subgrade areas that deflect excessively or 'pump' during proof rolling should be excavated and backfilled with acceptable engineered fill.

In those exposed areas exhibiting silty clays, it will be necessary for these areas needs to be thoroughly proof rolled under the observation of a qualified soil engineer. The proof rolling should be performed with a fully loaded, tandem axle dump truck or another heavily loaded pneumatic-tired vehicle by making continuous side-by-side passes across the cohesive sub-grade. The purpose of these procedures is to uniformly compact the surface and locate any soft areas that may require stabilization. Subgrade areas that deflect excessively or 'pump' during proof rolling should be excavated and backfilled with acceptable engineered fill. After the exposed subgrade materials have been properly

prepared, as described above, the pavement design section can be placed. Refer to the section below for material and placement requirements.

B. Base Course and Subbase Placement Requirements

For those areas with full depth pavement reconstruction, the pavement aggregated base course and sand subbase fill should be spread in level layers not exceeding 12 inches in loose thickness, with each layer being compacted to at least 95 percent of the maximum dry density value determined by ASTM Standard D-1557 (Modified Proctor). A sufficient number of field density tests should be performed during placement to verify proper compaction is achieved. Fill material should never be placed on frozen or muddy ground.

To facilitate compaction, we recommend these materials be placed within +/- 3 percent of the optimum moisture content determined by ASTM Standard D-1557 (Modified Proctor). If necessary to achieve this condition, appropriate moisture reconditioning should be performed at the time of placement. If it is necessary to add moisture, we recommend it be done by disking and harrowing the soil, as the water is added by spraying, to provide a relatively uniform moisture content throughout the soil mass. Alternately, if the soil is too wet at the time of placement, we recommend it be disked and aerated to allow it to dry to the desired moisture content before compaction, weather conditions permitting. In open areas, granular fill materials should be compacted using heavy vibratory smooth drummed rollers, however, in confined or limited access areas, vibratory plate compactors are recommended.

C. Pavement Design Recommendations

As stated above, we anticipate the exposed subgrade materials will generally consist of silty clays as encountered in the borings. In general, these subgrade materials are presumed to be characteristic of soils having fair to poor pavement support characteristics. On this basis and from our experience with similar soils, we have assumed an effective roadbed subgrade resilient modulus (M_R) of 3,000 pounds per square inch (psi) in our pavement analysis.

We have assumed the following pavement design criteria, for light duty and heavy-duty pavement areas, the design shall be based on 12,000 and 30,000, respectively, 18-kip Equivalent Axle Loads over the 20-year design life. In our pavement design, we utilized initial serviceability, p_o, of 4.5, a terminal serviceability, p_t, of 2.5 (therefore our design serviceability loss index (ΔPSI) is 2.0), a reliability (R) value of 95 percent, an overall standard deviation (S_o) value of 0.49 and drainage has been determined to be good with the percent of time pavement structure is exposed to moisture levels approaching saturation to 5% to 25%, thus a drainage coefficient, m_i, of 1.00 was determined.

The contractor shall be required to submit a job mix formula for each specified bituminous material, which has been approved by MDOT or has accompanying test results verifying the job mix formula is within MDOT requirements for the specified material. We recommend an asphalt grade of PG 58-22 be used in the production of all bituminous paving mixtures. Aggregates, mineral filler (if required), and asphalt binder shall be combined as necessary to produce a mixture proportioned within the uniformity tolerances listed in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects. The master gradation range is to be used for establishing mix design only. Topsoil, clay, or loam shall not be added to aggregates that are to be used in plant mixed HMA mixtures. The bituminous wearing and leveling courses should be compacted to a minimum of 95 percent of the theoretical maximum density determined by job mix formula. Additional material and testing requirements can be found in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects.

The foregoing recommendations are predicated on the assumption that heavy truck and trash removal vehicular traffic will be restricted from using the designated automobile parking areas. If segregation of the traffic types cannot be maintained, consideration should be given to using the heavier pavement section throughout the entire pavement area.

The recommended light-duty and heavy-duty pavement sections have different aggregate base course and total asphalt thickness. Where these two types of pavement sections adjoin, we recommend a gradual transition be provided in the subgrade grading and paving plans. In the subgrade transition, we recommend a minimum a 12-inch horizontal strip be provided for each one-inch difference in the aggregate base course thickness between adjacent sections (i.e., a gradual 6-foot-wide transition from 6 to 12 inches in aggregate base course thickness between adjacent pavement sections). The transition in asphalt course thickness should also be gradual over the same distance as the aggregate base course transition. To provide positive surface drainage of the pavements at all times, we recommend a minimum surface slope of 1 percent be provided throughout.

Based on the anticipated environmental load and the foregoing AASHTO design parameters for a 20-year service life, we recommend the following flexible and rigid pavement sections presented below. If any of our stated assumptions are grossly in error, we should be contacted so we may re-evaluate our pavement design recommendations in light of any additional information.

Table 1
Recommended Flexible Pavement Sections

Layer	Specified Material*	Recommended Minimum Thickness	
		Light-Duty	Heavy-Duty
Bituminous Wearing Course	36A or LVSP	1-1/2 in.	2 in.
Bituminous Leveling Course	13A or LVSP	1-1/2 in.	2 in.
Aggregate Base Course	21AA or In-Situ	8 in.	10 in.
Sand Subbase	Class IIA or In-Situ	12 in.	12 in.

* Note: Material designations refer to Michigan D.O.T. "Standard Specifications for Construction" and all supplemental specifications. Construction of the pavement and the related earthwork should also be performed in accordance with M.D.O.T. Specifications unless otherwise noted herein

V. GENERAL COMMMENTS

Samples taken in the field will be retained in our laboratory for a period of sixty days from the date of this report and will then be disposed of, unless otherwise requested. Samples stored over an extended time period, even in sealed jars, are subject to moisture loss and are then no longer representative of the in-situ condition in which they were sampled. During the course of the soil evaluation, procedures were followed which represent accepted practices in the field of geotechnical engineering. Therefore, discrepancies may exist between the driller's field logs and the final Soil Boring Logs submitted operations and describe field occurrences, sampling locations and other relevant information. The engineer preparing the report reviews the field logs as well as the laboratory soil classifications and laboratory test data. The final Soil Boring Logs are then promulgated based on all the information available from the field and laboratory operations.

The services of Snyder & Staley Engineering, P.L.C. should be engaged during construction to monitor the earthwork and foundation activities and to verify the use of proper materials, equipment and procedures. An appropriate number of field density tests should be performed during the earthwork operations to verify proper compaction is achieved where engineered fill is used. Foundation bearing surfaces should also be tested and observed to verify conditions are similar to those anticipated at the time our recommendations were formulated.

APPENDIX

GENERAL NOTES
SOIL BORING LOCATION DIAGRAM
SOIL BORING LOGS (B1 THROUGH B28)
UNIFIED SOIL CLASSIFICATION SYSTEM

SNYDER & STALEY ENGINEERING, P.L.C.

GENERAL NOTES

Drilling and Sampling Symbols

SS	–	Split–spoon Sample – 1 1/2" I.D., 2" O.D. except where noted.
ST	–	Shelby Tube Sample – 3" O.D. except where noted.
AS	–	Auger Sample
BS	–	Bag Sample
WS	–	Wash Sample
RC	–	Rock Core with Diamond Bit–NX Size except where noted.
NR	–	No Recovery
PS	–	Probe Sample
DR	–	Drove Rock
DS	–	Disturbed Sample

Water Level Measurement Symbols

WL	–	Water Level
WD	–	While Drilling
AB	–	After Boring
WC	–	Wet Cave–In
DC	–	Dry Cave–In
WS	–	While Sampling

NOTE:
Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. With impervious soils, short term observations of water level may not be an accurate indication of the long term ground water level. These levels may also fluctuate throughout the year with variations in precipitation, evaporation, and runoff.

Soil Property Symbols

N	–	Standard Penetration Resistance (ASTM D–1586. Blows of a 140 lb hammer falling 30 inches req'd to drive a 2 inch O.D. split–spoon sampler (except where otherwise noted) 1 ft into the soil).
qp	–	Calibrated hand penetrometer unconfined compressive strength, tsf.
qu	–	Controlled strain unconfined compressive strength, tsf (ASTM D–2166)
cs	–	Calibrated Torvane shear strength, tsf.
w	–	Water content, % (ASTM D–2216)
γ	–	Natural unit weight, pcf.
LL	–	Liquid Limit, % (ASTM D–4318)
PL	–	Plastic Limit, % (ASTM D–4318)
PI	–	Plasticity Index, % (ASTM D–4318)

Sample Classification

All Samples are visually classified in general accordance with ASTM Standard D–2487 (Unified Soil Classification System), unless otherwise noted.

PARTICLE SIZE

Boulders:	Greater than 12" (305mm)
Cobbles:	3" to 12" (76mm to 305mm)
Coarse Gravel:	3/4" to 3" (19mm to 76mm)
Fine Gravel:	#4 to 3/4" (4.75mm to 19mm)
Coarse Sand:	#10 to #4 (2.00mm to 4.75mm)
Medium Sand:	#40 to #10 (0.425mm to 2.00mm)
Fine Sand:	#200 to #40 (0.074mm to 0.425mm)
Silt:	0.005mm to 0.074mm
Clay:	Less than 0.005mm

CONSTITUENT TERMS

Few/Trace:	Less than 10%
Occasional/Trace to Some:	10% to 20%
Frequent/Some:	20% to 35%
And:	35% for each type of soil identified.

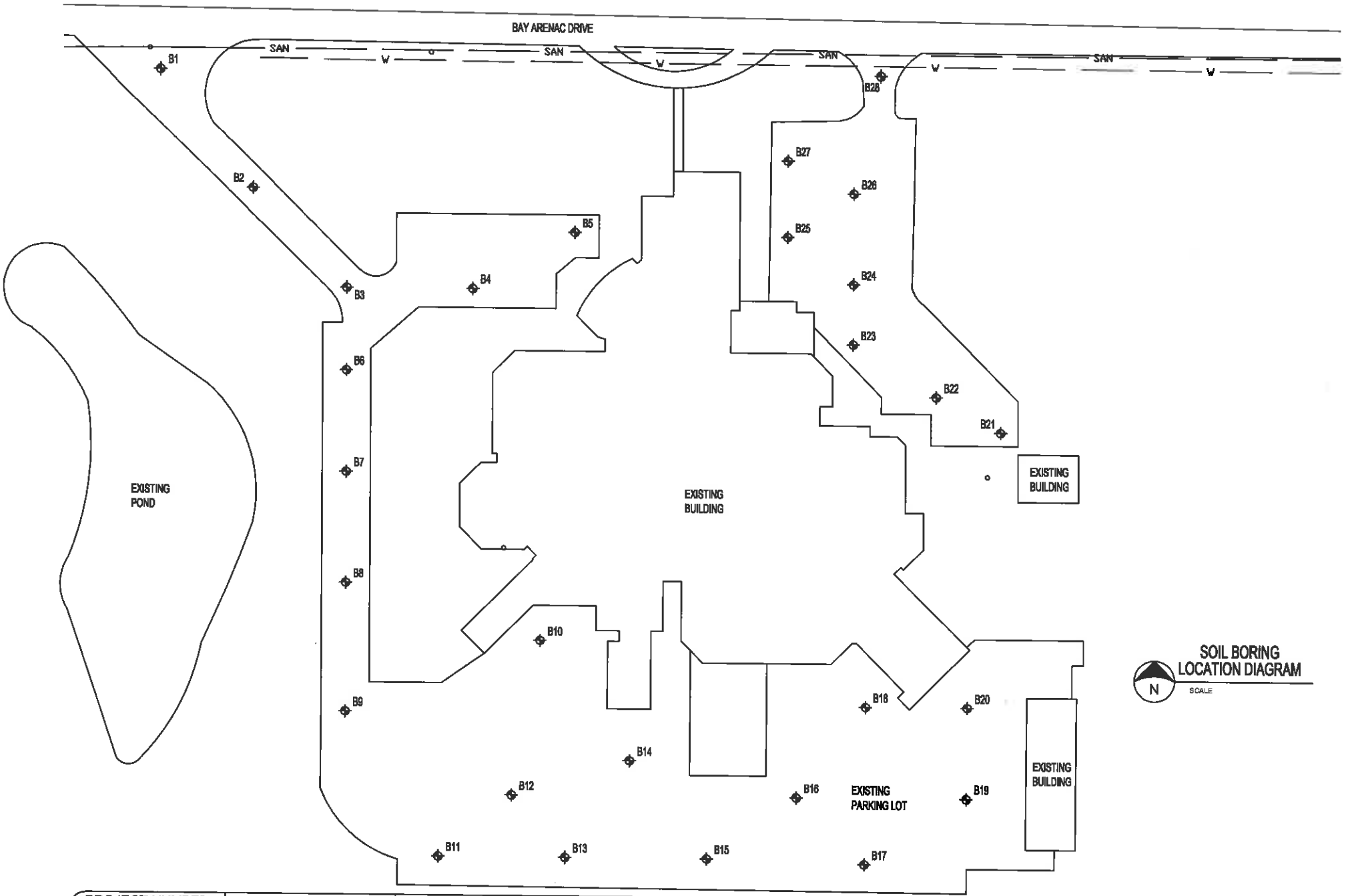
NOTE:
Soil constiutents area based on visually estimated quantities.

RELATIVE DENSITY OF GRANULAR SOILS

	STANDARD PENETRATION (N) VALUE, BLOWS / FOOT
Very Loose	Less than 4
Loose	4 – 9
Medium Dense	10 – 29
Dense	30 – 49
Very Dense	50 – 80
Extremely Dense	Greater than 80

CONSISTENCY OF COHESIVE SOILS

	UNCONFINED COMPRESSIVE STRENGTH (qu or qp), tsf
Very Soft	Less than 0.25
Soft	0.25 – 0.49
Firm	0.50 – 0.99
Stiff	1.00 – 1.99
Very Stiff	2.00 – 3.99
Hard	Greater than 4.00



PROJECT NUMBER: 25-433-207	DATE: 10/27/2025	PROJECT TITLE: PARKING/DRIVE RECONSTRUCTION MONITOR TOWNSHIP,BAY COUNTY	SNYDER & STALEY ENGINEERING, P.L.C.
SHEET NUMBER: SK1 SHT 1 OF 1	DRAWN BY: EJK	SHEET TITLE: SOIL BORING LOCATION DIAGRAM	CONSULTING ENGINEERS
	CHK'D BY: MDS		824 TITTAWBAWASSEE ROAD SAGINAW, MI 48604 PH: (989) 797-1710

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B1

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 4" of Asphalt PAVEMENT overlaying 11" of crushed limestone BASE COURSE (GP-BASE COURSE)										
			S1	SS	12	4 1/2			12	
Silty CLAY; trace sand and gravel - mottled; brown and gray - hard to stiff (CL)										
	5		S2	SS	4	1			16	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B2

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 7 ½" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP-FILL)			S1	SS	10	4 ½+			12	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)										
			S2	SS	22	4 ½+			11	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B3

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 6" of crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP-FILL)			S1	SS	18	4 ½+			10	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)	5		S2	SS	9	4			14	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B4

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3 ½" of Asphalt PAVEMENT overlaying 4 ½" of crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – loose (SP-FILL)			S1	SS	7	2			12	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)										
			S2	SS	22	2			12	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B5

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 11" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – loose (SP–FILL)			S1	SS	7	2 ½			14	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff to hard (CL)										
			S2	SS	14	4 ½			13	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS	BORING	SHEET
NONE While Sampling or Drilling	Rig: AFT Drilling Foreman: B. BELLOWS	
NONE Immediately After Completion	Started: 11/08/2025 Drawn By: E. KLENOW	5 of 28
. @ . After Completion	Completed: 11/08/2025 Approved: M. STALEY	

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B6

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 8" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP-FILL)			S1	SS	12	1			12	
Clayey SAND; trace silt and gravel – gray and brown – damp – medium dense to very loose (SC)										
Silty CLAY; trace sand and gravel – mottled; brown and gray – stiff (CL)	5		S2	SS	3	1			20	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B7

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 4" of Asphalt PAVEMENT overlaying 6 ½" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – medium dense (SP-FILL)			S1	SS	10	2 ½			15	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff to hard (CL)										
			S2	SS	13	4			11	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

7 of 28

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B8

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3 ½" of Asphalt PAVEMENT overlaying 6" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – loose (SP–FILL)			S1	SS	9	4 ½			15	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)										
	5		S2	SS	19	4 ½			13	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B9

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 4" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – loose (SP-FILL)			S1	SS	8	1 ½			16	
Silty CLAY; trace sand and gravel – mottled; brown and gray – stiff to very stiff (CL)										
	5		S2	SS	14	3 ½			12	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

9 of 28

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B10

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 10 ½" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP-FILL)			S1	SS	10	3			27	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)										
	5		S2	SS	8	3			17	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B11

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 5 ½" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – moist to very moist – loose (SP-FILL)			S1	SS	8	4 ½+			10	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)										
	5		S2	SS	21	4 ½+			11	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B12

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight ϒ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 10" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – medium dense (SP-FILL)			S1	SS	13	4			11	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)										
	5		S2	SS	9	4			14	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

___ @ ___ After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B13

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 9" of crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – loose (SP-FILL)			S1	SS	6	2			20	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff to firm (CL)										
			S2	SS	2	<1			24	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

13 of 28

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B14

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 10" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP–FILL)			S1	SS	13	4 ½			11	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard to very stiff (CL)										
	5		S2	SS	6	1 ½			16	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

___ . ___ @ ___ . ___ After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B15

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 11" of crushed limestone BASE COURSE (GP-BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – moist to very moist – loose (SP-FILL)			S1	SS	6	<1			16	
Silty CLAY; trace sand and gravel – mottled; brown and gray – firm (CL)										
	5		S2	SS	4	<1			14	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

15 of 28

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B16

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 13 ½" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – moist – medium dense (SP–FILL)			S1	SS	10	4 ½			12	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard to stiff (CL)										
	5		S2	SS	5	1			18	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

___ @ ___ After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B17

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 13 ½" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp to moist – loose (SP–FILL)			S1	SS	6	2			12	
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)										
			S2	SS	10	2			12	
	5									
Boring Terminated at 5 feet										
	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

___ @ ___ After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B18

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 5 ½" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Fine sand FILL; trace silt and gravel – brown – damp – medium dense (SP–FILL)			S1	SS	16	4 ½+			31	
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard to very stiff (CL)										
	5		S2	SS	10	2			20	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

___. @ ___. After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B19

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 3" of Asphalt PAVEMENT overlaying 11" of asphalt millings and crushed limestone BASE COURSE (GP-BASE COURSE)										
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)			S1	SS	8	2			24	
	5		S2	SS	11	3			12	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS	BORING	SHEET
NONE While Sampling or Drilling	Rig: AFT Drilling Foreman: B. BELLOWS	
NONE Immediately After Completion	Started: 11/08/2025 Drawn By: E. KLENOW	19 of 28
. @ . After Completion	Completed: 11/08/2025 Approved: M. STALEY	

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B20

Project: Bay-Arenac ISD Career Center Project No: 25-433-207

Location: 4155 Monitor Rd Bay City, MI 48706 Client: Bay-Arenac ISD

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 2 ½" of Asphalt PAVEMENT overlaying 15 ½" of asphalt millings and crushed limestone BASE COURSE (GP–BASE COURSE)										
Silty CLAY; trace sand and gravel – mottled; brown and gray – very stiff to stiff (CL)			S1	SS	10	2			13	
	5		S2	SS	5	1			18	
Boring Terminated at 5 feet	10									

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT Drilling Foreman: B. BELLOWS

Started: 11/08/2025 Drawn By: E. KLENOW

Completed: 11/08/2025 Approved: M. STALEY

SHEET

20 of 28

SNYDER & STALEY ENGINEERING, P.L.C.

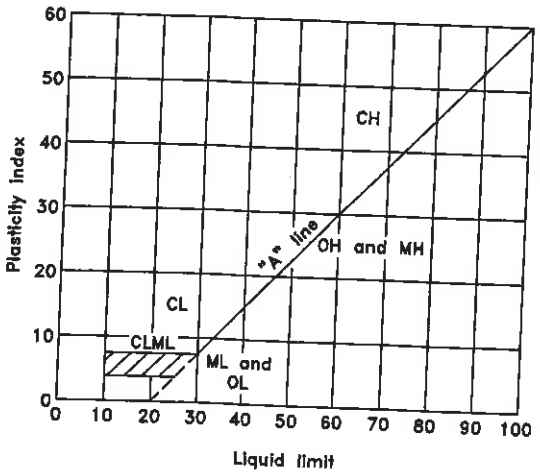
UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions			Group Symbols	Typical Names	Laboratory Classification Criteria
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well graded gravels, gravel–sand mixtures, little or no fines.	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel–sand mixtures, little or no fines.	Not meeting all gradation requirements for GW.
		Gravels with fines (Appreciable amount of fines)	GM[a] d / u	Silty gravels, gravel–sand–silt mixtures.	Atterberg limits below "A" line or P.I. less than 4. / Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
			GC	Clayey gravels, gravel–sand–clay mixtures.	Atterberg limits below "A" line with P.I. greater than 7. / Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands little or no fines.	Not meeting all gradation requirements for SW.
		Sands with fines (Appreciable amount of fines)	SM[a] d / u	Silty sands, sand–silt mixtures.	Atterberg limits above "A" line or P.I. less than 4. / Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
			SC	Clayey sands, sand–clay mixtures.	Atterberg limits above "A" line with P.I. greater than 7. / Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
Fine grained soils (more than half material is smaller than No. 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
			OL	Organic silts and organic silty clays of low plasticity.	
	Silts and clays (Liquid limit greater than 50)		MH	Inorgainc silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
			CH	Inorganic clays of high plasticity, fat clays.	
			OH	Organic clays of medium to high plasticity, organic silts.	
	Highly organic soils		Pt	Peat and other highly organic soils.	

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 per cent	More than 12 per cent	5 to 12 per cent
GW, GP, SW, SP	GM, GC, SM, SC	Borderline cases requiring dual symbols[b]

Plasticity Chart



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

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

SECTION 00300

PROPOSAL FORM

Date_____

Name of Bidder _____

TO: Attn: Ken Kerr,
Building Operations Supervisor
Bay Arenac ISD
4228 Bay-Arenac Dr.
Bay City, MI 48706

PROPOSAL FOR: Parking Lot Resurfacing

1. BASE BID/ADDENDA

The undersigned has carefully examined the bidding and contract documents including the Instructions to Bidders, Agreement Between Owner and Contractor, General Conditions, Supplementary Conditions, Contract Requirements, General Requirements, Specifications, Drawings, and any and all Addenda issued, and has familiarized himself with all local conditions to be encountered affecting the cost of the work and does hereby propose to perform all work and to furnish all of the labor, materials, tools, equipment and services necessary to complete the contract in connection with the above project, all in accordance with the contract documents prepared by TSSF Architects, including the following addenda:

Addendum No. _____, Dated _____

Addendum No._____, Dated _____

Addendum No. _____, Dated _____

for the following BASE BID AMOUNT:

_____Dollars

(Bid in words)

$ _____

(Bid in figures)

Add Alternate No 1: Price to replace existing chain link fence with new chain link fence.

$_____

2. **ALLOWANCES:** Included in the above Base Bid are the following allowance amounts as described in Division 1: Basic Requirements

A. Contingency Allowance $ $25,000

3. **STARTING and COMPLETION DATES**: The undersigned agrees, if awarded the contract, that he will commence the work within ten (10) calendar days after the Owner gives the Bidder written notice to commence the work and shall complete the entire work within the following calendar days after the date of issuance of the notice to commence the work.

Bidder's calendar days to complete the project _____

4. **FEES FOR ADDITIONAL WORK – TO BE COMPLETED BY THE BIDDER:**
For additional work performed upon instructions of the Owner by subcontractors of the undersigned, a fee of _____ percent of the subcontractor's price will be charged by the undersigned for overhead, profit, etc. For additional work performed upon instructions of the Owner by work forces of the undersigned, the charges shall be the actual cost of all labor and materials (less all discounts) plus a fee of_____percent, which includes all charges of the undersigned for overhead, profit, etc.

5. **BID BOND/INSURANCE/BONDS**
In compliance with the requirements, this proposal is accompanied by a bid security in the form of a certified check or a surety company bond in the sum of at least 5% of the total bid to guarantee that a contract will be executed if the above proposal is accepted and the contract awarded to the undersigned. It is agreed that the bid security will be retained as liquidated damages by the Owner if the bidder fails to execute a contract in accordance with his bid within forty-five days after receipt of bids. Also included in this proposal are premiums for insurance coverage and performance and payment bonds as described in Sections 00610 and 00650.

6. **ADDRESS, LEGAL STATUS and SIGNATURE OF BIDDER**

The undersigned bidder does hereby designate the information given below as the legal name and address to which all notices, directions, or other communications may be served or mailed.

NAME: _____

ADDRESS: _____

CITY: _____ STATE:_____ZIP:_____

PHONE NUMBER: (_____)_____FAX NUMBER: (____)_____

The undersigned bidder does hereby declare that the bidder has the legal status checked below:

Individual

Co-partnership

Corporation incorporated under the laws of the State of _____

If a Corporation, affix corporate seal here

Date: _____

Signed: _____

Note: If Bid Form is signed by an Agent, attach a certified Power of Attorney

NOTE: Submit two (2) original copies of this proposal unless otherwise instructed.

END OF DOCUMENT

SECTION 00500

AGREEMENT BETWEEN OWNER AND CONTRACTOR

PART 1 GENERAL

1.1 AGREEMENT FORM

A. Agreement between Owner and Contractor will be AIA Document A101, Standard Form of Agreement between Owner and Contractor, 1997 Edition.

1.2 RELATED SECTIONS

A. Section 00650 - Insurance Requirements

B. Section 00700 - General Conditions of the Contract

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 00610

PERFORMANCE, LABOR, AND MATERIAL BONDS

PART 1 GENERAL

1.1 BONDS REQUIRED

A. The successful Contractor, shall within fifteen (15) days after acceptance of his proposal, furnish a Performance Bond, in an amount equal to one hundred percent (100%) of the contract sum as security for the faithful performance of this contract and also a Labor and Material Payment Bond in an amount not less than one hundred percent (100%) of the contract sum as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract.

B. Cost of said bonds shall be included as a part of the Base Bid.

C. The Contractor shall obtain such bonds in a manner consistent with Michigan law.

D. Bonds signed by Attorney-In-Fact must be accompanied by a certified and effectively dated copy of their Power of Attorney.

1.2 RELATED SECTIONS

A. Section 00500 - Agreement Between Owner and Contractor

B. Section 00700 - General Conditions of the Contract

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 00650

INSURANCE REQUIREMENTS

PART 1 GENERAL

1.1 INSURANCE REQUIREMENTS

A. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the work. Certificates shall contain a provision that coverages afforded under the policies will not be modified or canceled until at least 30 days prior written notice has been given to the Owner. Submit two copies of each certificate to the Architect. Furnish to the Architect copies of any endorsements that are subsequently issued amending coverage or limits.

B. All insurance shall be carried with companies which are financially responsible. If any such insurance is due to expire during the term of the Contract, the Contractor shall not permit the coverage to lapse and shall furnish evidence of continuing coverage to the Architect/Owner.

C. Workmen's Compensation: As required by all applicable Federal and State laws, including Employer's Liability with a limit of at least $100,000.00.

D. Comprehensive General Liability: Including Contractor's Liability, Contingent Liability, Contractual Liability, Elevator Liability, Products including Completed Operations, all on occurrence basis with Personal Injury Coverage and Broad Form Property Damage. Including CCU related to Explosion, Collapse and Underground Property Damage. Products, including Completed Operations Liability shall be kept in force for at least 2 years after date of final completion.

E. Contractor's Liability Insurance, including Contractual Liability (Comprehensive General Liability Form):

Minimum Coverage

Bodily Injury:	
Each Occurrence	$1,000,000.00
Aggregate	$2,000,000.00
Property Damage:	
Each Accident	$1,000,000.00
Aggregate	$2,000,000.00
Fire Damage	$ 50,000.00
Medical Expenses	$ 5,000.00

F. Comprehensive Automobile Liability: including non-ownership and hired car coverage as well as vehicles.

Minimum Coverage

Bodily Injury and Death:	
Each Person	$1,000,000.00
Each Occurrence	$1,000,000.00
Property Damage:	
Each Occurrence	$1,000,000.00

G. Umbrella Liability

Each Occurrence	$2,000,000.00
Aggregate	$2,000,000.00

H. Worker's Compensation and Employer's Liability

Each Accident	$100,000.00
Disease - Policy Limit	$500,000.00
Disease - Each Employee	$100,000.00

I. Contractor's insurance shall include coverage for liability assumed by Contractor under General Conditions A201, Paragraph 4.18, indemnification of General Conditions.

J. The Contractor shall furnish Owner with Certificates of Insurance showing by specific reference that each of the foregoing items has been provided. Furnish three copies of Certificate of Insurance, using AIA Document G705.

K. Owner's Insurance: The Owner shall carry fire, extended coverage, hydrostatic coverage, vandalism and malicious mischief insurance in the "completed value" form in an amount equal to full insurable value of the work including theft. Owner's insurance to be broad form Builder's Risk, naming Owner and all prime contractors as additional insured.

END OF SECTION

SECTION 00700

GENERAL CONDITIONS OF THE CONTRACT

PART 1 GENERAL

1.1 GENERAL CONDITIONS

A. The 2017 edition of the AIA General Conditions of the Contract for Construction (AIA Document A-201) is hereby made a part of this Contract and shall be as fully binding on all contractors and subcontractors as if bound herein.

B. This document may be inspected at the office of the Architect.

1.2 GENERAL CONTRACTORS' RESPONSIBILITY

A. Prior to the beginning of construction, the General Contractor shall acquaint each contractor, subcontractor, superintendent of construction, foreman, workman, supplier, or others who are or will be responsible for the execution of any trade under this contract with all provisions of the Conditions of the Contract (General, and other conditions), the drawings, the specifications, all addenda issued prior to bid, and all modifications issued after execution of the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 00800
DRAWING INDEX

COVER:

ARCHITECTURAL:

DS1.0 – DEMOLITION SITE PLAN

A1.0 – RESURFACING PLAN

A1.1 – STRIPPING PLAN

END OF SECTION

SECTION 01001

BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Summary:
1. Contract description.
2. Work by Owner.
3. Contractor's use of premises.
4. Specification conventions.

B. Price and Payment Procedures:
1. Testing and inspection allowances.
2. Schedule of values.
3. Applications for payment.
4. Change procedures.

C. Administrative Requirements:
1. Coordination.
2. Field engineering.
3. Meetings.
4. Equipment electrical characteristics and components.
5. Cutting and patching.

D. Submittals:
1. Submittal procedures.
2. Construction progress schedules.
3. Proposed products list.
4. Product data.
5. Shop drawings.
6. Samples.
7. Manufacturer's instructions.
8. Manufacturer's certificates.

E. Quality Requirements:
1. Quality control.
2. Tolerance.
3. References.
4. Labeling.
5. Testing and inspection laboratory services.
6. Manufacturer's field services and reports.
7. Examination.
8. Preparation.

F. Temporary Facilities and Controls:
1. Temporary electricity.
2. Temporary lighting for construction purposes.
3. Temporary heating and cooling.
4. Temporary ventilation.
5. Telephone and facsimile service.
6. Temporary water service.

7. Temporary sanitary facilities.
8. Field offices and sheds.
9. Access roads.
10. Parking.
11. Progress cleaning and waste removal.
12. Project identification.
13. Fire prevention facilities.
14. Barriers and fencing.
15. Enclosures.
16. Protection of installed work.
17. Security.
18. Water control.
19. Pollution and environmental control.
20. Removal of utilities, facilities, and controls.

G. Product Requirements:
1. Products.
2. Delivery, handling, storage, and protection.
3. Product options.
4. Substitutions.

H. Execution Requirements:
1. Closeout procedures.
2. Final cleaning.
3. Starting of systems.
4. Demonstration and instructions.
5. Testing, adjusting, and balancing.
6. Protecting installed construction.
7. Project record documents.
8. Operation and maintenance data.
9. Spare parts and maintenance materials.
10. Warranties.

1.2 CONTRACT DESCRIPTION

A. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER

A. Owner will award contracts for supply and installation of security, signage, audio/visual (A/V), which will commence during the execution of this contract.

B. Items noted as NIC (Not in Contract), movable cabinets, furnishings and minor equipment will be furnished and installed by Owner after Substantial Completion.

1.4 CONTRACTOR'S USE OF PREMISES

A. Limit use of premises to allow:
1. Work by others and work by Owner.

1.5 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences

1.6 CONTINGENCY ALLOWANCE

A. Include in the contract, $25,000 for use upon architect/engineers’ instruction.

B. Contractor’s costs for products, delivery installation, labor, insurance, payroll taxes, bonding equipment rental, overhead, and profit are included in change orders authorizing expenditure from this allowance.

1.7 ALTERNATE

A. None

1.8 SCHEDULE OF VALUES

A. Submit schedule on AIA Form G703.

B. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.

1.9 APPLICATION FOR PAYMENT

A. Submit three copies of each application on AIA Form G702 and G703.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly. Pay requests due on the 30th of every month, payment to go out by 21ST of the month following.

1.10 CHANGE PROCEDURES

A. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor’s fixed price quotation.

B. Change Order Forms AIA G701.

1.11 COORDINATION

A. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

C. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.

1.12 FIELD ENGINEERING

A. Employ experienced instrument technician to locate reference datum and protect survey control and reference points.

B. Establish elevations, lines, and levels and certify elevations and locations of the Work conform with Contract Documents.

C. Verify field measurements are as indicated on shop drawings or as instructed by manufacturer.

1.13 PRECONSTRUCTION, SITE MOBILIZATION AND PREINSTALLATION MEETINGS

A. Contractor shall schedule preconstruction and site mobilization meeting after Notice of Award for affected parties.

B. When required in individual specification section, convene preinstallation meeting at Project site prior to commencing work of section.

1.14 PROGRESS MEETINGS

A. Contractor shall schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.

B. Contractor shall preside at meetings, record minutes, and distribute copies within two days to those affected by decisions made.

1.15 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Motors: NEMA MG1 Type; specific motor type is specified in individual specification sections.

B. Wiring Terminations: Terminal lugs to match branch circuit conductor; size terminal lugs to NFPA 70.

C. Cord and Plug: Minimum 6-foot cord and plug including grounding connector; cord of longer length is specified in individual sections.

1.16 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching new Work; restore Work with new Products.

B. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
   1. Fit several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

C. Cut masonry and concrete materials using masonry saw or core drill. Restore Work with new Products in accordance with requirements of Contract Documents.

Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction, completely seal voids.

D. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

E. Refinish surfaces to match adjacent finishes.

1.17 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.

B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

C. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.

D. Revise and resubmit submittals as required; identify changes made since previous submittal.

1.18 PROPOSED PRODUCTS LIST

A. Within 15 days after date of Notice to Proceed, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.19 PRODUCT DATA

A. Product Data:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. Submit number of copies which Contractor requires, plus two copies which will be retained by Architect/Engineer.

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer’s standard data to provide information unique to this project.

1.20 SHOP DRAWINGS

A. Shop Drawings:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
   1. Include signed and sealed calculations to support design.
   2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
   3. Make revisions and provide additional information when required by authorities having jurisdiction.

C. Submit number of opaque reproductions Contractor requires, plus two copies which will be retained by Architect/Engineer.

1.21 SAMPLES

A. Samples for Review:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. Samples for Selection:
   1. Submitted to Architect/Engineer for aesthetic, color, or finish selection.
   2. Submit samples of finishes from full range of manufacturer’s standard colors, textures, and patterns for Architect/Engineer selection.
   3. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

C. Submit samples to illustrate functional and aesthetic characteristics of Product.

D. Submit samples of finishes from full range of manufacturer’s standard colors, textures, and patterns for Architect/Engineer's selection.

1.22 MANUFACTURER’S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.23 MANUFACTURER’S CERTIFICATES

A. When specified in individual specification sections, submit certifications by manufacturer to Architect/Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.24 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturer’s instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.25 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturer’s tolerances.

1.26 REFERENCES

A. Conform to reference standards by date of issue current as of date of Contract Documents.

B. When specified reference standard conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

1.27 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
1. Model number.
2. Serial number.
3. Performance characteristics.
4. Mock-ups.

1.28 TESTING AND INSPECTION LABORATORY SERVICES

A. Owner will appoint and employ services of independent firm to perform testing and inspection. Pay for services from specified Cash Allowance.

B. Independent firm will perform tests, inspections, and other services as required.

C. Cooperate with independent firm; furnish samples as requested.

D. Re-testing required because of non-conformance to specified requirements will be charged to Contractor.

1.29 MANUFACTURER’S FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to furnish qualified staff personnel to observe site conditions and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturer’s written instructions.

1.30 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify utility services are available, of correct characteristics, and in correct location.

1.31 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.32 TEMPORARY ELECTRICITY

A. Pay cost of electricity used.

B. Provide temporary electricity and power outlets for construction operations, connections, branch wiring, distribution boxes, and flexible power cords as required. Do not disrupt Owner's need for continuous service.

1.33 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain temporary lighting for construction operations.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Permanent building lighting may be utilized during construction. Repair, clean, and replace lamps at end of construction.

1.34 TEMPORARY HEATING AND COOLING

A. Provide heating and cooling devices, extend and supplement with temporary units and heat and cool as needed to maintain specified conditions for construction operations.

B. Pay cost of energy used.

C. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

D. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.35 TEMPORARY VENTILATION

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.36 TELEPHONE AND INTERNET SERVICE

A. Provide, maintain, and pay for telephone service to field office at time of project mobilization. Allow Architect/Engineer incidental use.

1.37 TEMPORARY WATER SERVICE

A. Provide, maintain, and pay for suitable quality water service required. Connect to existing water source for construction operations.

1.38 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. New facilities may not be used.

B. Maintain clean and sanitary condition.

1.39 FIELD OFFICES AND SHEDS

A. Office: Weather tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 10 persons.

1.40 ACCESS ROADS

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.

B. On-site roads may be used for construction traffic.

1.41 PARKING

A. Construct on-site parking areas for accommodating construction personnel.

1.42 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition. This is to include maintaining both M-25 and Bay Roads.

1.43 PROJECT IDENTIFICATION

A. Provide 8-foot-wide x 8-foot-high project sign of exterior grade plywood and wood frame construction, painted, to Architect/Engineer's design and colors.

B. Erect on site at location established by Architect/Engineer.

1.44 FIRE PREVENTION FACILITIES

A. Prohibit smoking within buildings under construction. Designate area on site where smoking is permitted.

B. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

C. Portable Fire Extinguishers: NFPA 10; 10-pound capacity, 4A-60B: C UL rating.
   1. Provide one fire extinguisher at each stair on each floor of buildings under construction.
   2. Provide minimum one fire extinguisher in every construction trailer and storage shed.

3. Provide a minimum of one fire extinguisher on roof during roofing operations using heat producing equipment.

1.45 BARRIERS AND FENCING

A. Provide fencing to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage.

B. Construction: Contractor's option.

C. Provide a 6-foot-high fence around construction site; equip with vehicular gates with locks.

1.46 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Prohibit traffic or storage upon waterproofed or roofed surfaces.

1.47 SECURITY

A. Provide security and facilities to protect Work and Owner's operations from unauthorized entry, vandalism, or theft.

1.48 WATER CONTROL

A. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Provide erosion control.

1.49 POLLUTION AND ENVIRONMENTAL CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Provide dust control, erosion and sediment control, noise control, pest control and rodent control to allow for proper execution of the Work.

C. Comply with pollution and environmental control requirements.

1.50 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion review.

B. Remove underground installations to minimum depth of 2 feet.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to their original condition. Restore permanent facilities used during construction to specified condition.

1.51 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of same manufacture for components being replaced.

1.52 DELIVERY, HANDLING, STORAGE, AND PROTECTION

A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.

1.53 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for manufacturers not named.

1.54 SUBSTITUTIONS

A. Substitutions will only be considered when the Product becomes unavailable through no fault of Contractor.

B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

C. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

1.55 CLOSEOUT PROCEDURES

A. Submit written certification Contract Documents have been reviewed, Work has been inspected, and Work is complete in accordance with Contract Documents and ready for Architect/Engineer's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.

1.56 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.

C. Clean debris from site, roofs, gutters, downspouts, and drainage systems.

D. Replace filters of operating equipment.

E. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.57 STARTING OF SYSTEMS

A. Provide seven days notification prior to start-up of each item.

B. Ensure each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturer’s instructions.

D. Submit written report stating equipment or system has been properly installed and is functioning correctly.

1.58 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of final review.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

1.59 TESTING, ADJUSTING, AND BALANCING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Mechanical Contractor will follow mechanical engineers list of approved Testing and balance companies and appoint and employ services of independent firm to perform testing, adjusting, and balancing.

C. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with requirements of Contract Documents.

D. Cooperate with independent firm; furnish assistance as requested.

E. Re-testing required because of non-conformance to specified requirements will be charged to Contractor.

1.60 PROTECTING INSTALLED CONSTRUCTION

A. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

C. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

D. Prohibit traffic from landscaped areas.

1.61 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of Contract Documents to be utilized for record documents.

B. Record actual revisions to the Work. Record information concurrent with construction progress.

C. Specifications: Legibly mark and record at each Product section description of actual Products installed.

D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.

E. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.62 OPERATION AND MAINTENANCE DATA

A. Submit two sets prior to final inspection, bound in 8-1/2 x 11-inch text pages, three D side ring capacity expansion binders with durable plastic covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

C. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.

D. Contents:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system.
3. Part 3: Project documents and certificates.

1.63 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.64 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02230

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Protecting existing trees, shrubs, groundcovers, plants and grass to remain.
   2. Removing existing trees, shrubs, groundcovers, plants and grass.
   3. Clearing and grubbing.
   4. Stripping and stockpiling topsoil.
   5. Temporary erosion and sedimentation control measures.

1.2 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.3 MATERIAL OWNERSHIP

A. All stripped topsoil and other excavated materials shall remain on Owner's property. No materials are to be removed from site.

1.4 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Section 02300 - Earthwork.
   1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
   1. Do not store construction materials, debris, or excavated material within fenced area.
   2. Do not permit vehicles, equipment, or foot traffic within fenced area.
   3. Maintain fenced area free of weeds and trash.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
   1. Cover exposed roots with burlap and water regularly.
   2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
   3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.

4. Backfill with soil as soon as possible.

D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.
   1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
   2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Architect.

3.4 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
   1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
   2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
   3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
   4. Use only hand methods for grubbing within tree protection zone.
   5. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
   1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
   1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Limit height of topsoil stockpiles to 48 inches.
   2. Do not stockpile topsoil within tree protection zones.
   3. Dispose of excess topsoil as specified on site.
   4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

END OF SECTION

SECTION 02274

SOIL EROSION PREVENTION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. System Description.

B. Quality Assurance.

C. Regulatory Requirements.

D. Method of Payment.

1.2 SYSTEM DESCRIPTION

A. Methods of control are identified on Drawings by numbers corresponding to the Michigan Unified Keying System for soil erosion and sedimentation control.

B. The notation "T" or "P" following the number (as shown on the Drawings) indicates whether the control measure is temporary or permanent.

C. Additional control measures shall be employed as required by site conditions and applicable enforcing agency having project jurisdiction.

1.3 QUALITY ASSURANCE

A. Perform and maintain work in accordance with the Soil Erosion and Sedimentation Control, Part 91 of Act 451 of 1994, and corresponding rules of the Michigan Department of Environmental Quality.

1.4 REGULATORY REQUIREMENTS

A. Contractor shall obtain all permits and pay all fees for plan review and inspection as required by applicable enforcing agency having jurisdiction.

B. Submit installation time schedule for temporary and permanent soil erosion and sedimentation control measures to applicable enforcing agency having jurisdiction, as well as to Engineer. Make submittals prior to start of construction.

C. If the site disturbs more than 5.0 acres during the construction project, the Contractor shall obtain a NPDES storm water construction permit and abide by all the rules associated to such a permit.

1.5 METHOD OF PAYMENT

A. All fees required by applicable enforcing agency shall be paid as stated in Proposal.
02274-2 Jolt Credit Union Bid Set

PART 2 PRODUCTS

2.1 MATERIALS

A. Permanent Measures: In accordance with applicable Section for specified materials.

B. Temporary Measures: In accordance with standards and specifications for soil erosion and sediment control with approved plans and requirements of applicable enforcing agency.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Identify required lines, levels, contours and datum.

B. Field locate known utility locations. Notify Engineer of conflicts and attain removal or relocation instructions prior to continuing installation activities.

C. Maintain and protect existing utilities to remain.

3.2 PROTECTION OF ADJACENT WORK

A. Protect adjacent structures and property which may be damaged by execution of work.

B. Protect existing trees, shrubs, landscaping and lawn areas designated to remain.

3.3 INSTALLATION AND MAINTENANCE

A. Construct soil erosion and sedimentation control measures in accordance with approved plans and requirements of applicable enforcing agency.

B. Schedule planned control measures with construction operations to limit the area of any disturbed land to the shortest possible period of exposure.

C. Conduct all earth changes so as to effectively reduce accelerated soil erosion and resulting sedimentation.

D. Remove all sediment from runoff water before it leaves the site.

E. Inspect, maintain and repair temporary control measures until permanent control measures are implemented.

F. Maintain permanent control measures until final acceptance by Owner.

G. Install silt fences around all catch-basin inlets, to be removed after final inspection of the project.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes site grading, removal of topsoil and subsoil, building excavating and trenching, backfilling, and compacting.

1.2 QUALITY ASSURANCE

A. Perform Work in accordance with State of Michigan Department of Transportation standards.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. Topsoil: Reusable excavated friable loam; free of subsoil, roots, grass, weeds, large stone, and foreign matter.

B. Subsoil: Excavated material, graded free of lumps larger than 6 inches, rocks larger than 3 inches, organic material, and debris.

2.2 FILL MATERIALS

A. Type A - Select Aggregate Material: Coarse stone: Angular, washed natural stone; free of shale, clay, friable material, sand, debris.
   1. Grading:
      a. Minimum Size: ½ inch.
      b. Maximum Size: 2 inch.

B. Type B - Pea Gravel: Natural stone; washed, free of clay, shale, organic matter.
   1. Minimum Size: ¼ inch.
   2. Maximum Size: 5/8 inch.

C. Type C - Sand: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.
   1. Grading: MDOT Class II

D. Type D - Subsoil: Reused, free of rock larger than 3 inch size, and debris.

2.3 ACCESSORIES

A. Geotextile Fabric: Grid type, see basic requirements 01001 - Unit Prices for additional information.

B. Landscape Geo Textile Fabric: Equal to US Fabrics #US0SB3 Landscape Fabric, non-woven, spun bond geotextile fabric, 100% polypropylene filament fibers.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Call Local Utility Line Information service at 1-800-MISS-DIG not less than three working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum.

C. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

D. Maintain and protect existing utilities to remain.

E. Verify foundation or basement walls are braced to support surcharge forces imposed by backfilling operations.

3.2 PROTECTION OF ADJACENT WORK

A. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.

B. Grade excavation top perimeter to prevent surface water run-off into excavation or to adjacent properties.

3.3 TOPSOIL EXCAVATING

A. Do not excavate wet topsoil.

B. Excavate topsoil and stockpile on site.

3.4 SUBSOIL EXCAVATING

A. Do not remove wet subsoil.

B. Remove groundwater by pumping to keep excavations dry.

C. Excavate subsoil required for building foundations, construction operations, and other Work.

D. Slope banks to angle of repose or less, until shored.

E. Proof roll bearing surfaces. Fill soft spots with type ‘C’ fill and compact uniformly to 95 percent of maximum density.

F. Correct unauthorized excavation at no cost to Owner.

G. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Architect/Engineer.

H. Stockpile subsoil on site.

3.5 TRENCHING

A. Excavate for storms sewer, sanitary sewer, ducts, water and gas piping to municipal utilities.

B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.

C. Hand trim excavation and leave free of loose matter.

D. Support pipe and conduit during placement and compaction of bedding fill.

E. Backfill trenches to required contours and elevations.

F. Place and compact fill materials as for Backfilling.

3.6 BACKFILLING

A. Backfill areas to contours and elevations. Use unfrozen and unsaturated materials.

B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Place geotextile fabric over unstable subsoil.

D. Place material in continuous layers as follows:
   1. Soil Materials: Maximum 12 inches compacted depth.
   2. Fill Materials: Maximum 8 inches compacted depth.

E. Employ placement method so not to disturb or damage foundations, foundation perimeter drainage or utilities in trenches.

F. Maintain optimum moisture content of backfill materials to attain required compaction density.

G. Backfill against supported foundation walls. Backfill simultaneously on each side of unsupported foundation walls.

H. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.

3.7 PLACING TOPSOIL

A. Place topsoil in areas where seeding and planting is scheduled.

B. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.

C. Remove large stone, roots, grass, weeds, debris, and foreign material while spreading.

D. Lightly compact placed topsoil.

E. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.8 TESTS

A. Perform laboratory material tests in accordance with ASTM D698.

B. Perform in place compaction tests in accordance with the following:
   1. Density Tests: ASTM D2922.

C. Frequency of Tests: Three.

3.9 TOLERANCES

A. Top Surface of Exposed Subgrade: Plus or minus one inch.

B. Top of Topsoil: Plus or minus ½ inch.

3.10 SCHEDULE

A. Exterior Side of Foundation Walls: Type ‘B’ fill, to subgrade elevation, compact uniformly to 90 percent.

B. Fill Under Landscaped Areas: Type ‘D’ fill, to 12 inches below finish grade, compact uniformly to 90 percent of maximum density. Topsoil fill to grade over landscape geotextile fabric barrier, compacted to 90 percent.

C. Fill under grass seeded areas: Type ‘D’ fill to 8 inches below finish grade, compact uniformly to 90 percent of maximum density. Topsoil fill to grade lightly compact.

D. Fill Under Concrete Paving: Type ‘C’ fill, to 4 inches below finish paving elevation, compact uniformly to 95 percent of maximum density.

E. Fill Under Flexible Pavement: By Pavement Contractor.

F. Fill at Trenches/Drainage Piping: Type ‘B’ fill over geotextile fabric setting bed minimum 6 inches over pipe, Type ‘C’ to fill under landscaped areas, flexible pavement or concrete paving.

END OF SECTION

SECTION 02740

FLEXIBLE PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Aggregate subbase.
   2. Asphalt paving base course, leveling course, and wearing course.
   3. Pavement markings.

1.2 PERFORMANCE REQUIREMENTS

A. Paving: Designed for parking and light duty commercial vehicles.

1.3 SUBMITTALS

A. Product Data:
   1. Submit product information for asphalt and aggregate materials.
   2. Submit mix design with laboratory test results supporting design.

1.4 QUALITY ASSURANCE

A. Mixing Plant: Conform to State of Michigan Department of Transportation standards.

B. Obtain materials from same source throughout.

C. Perform Work in accordance with State of Michigan Department of Transportation standards.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 degrees F below bitumen suppliers bill of lading and not more than maximum specified temperature.

C. Pavement Marking Paint: Clean and dry surfaces, cured 21 days minimum, at a minimum ambient surface temperature of 40 degrees F for oil based and not exceeding 95 degrees F.

PART 2 PRODUCTS

2.1 ASPHALT MATERIALS

A. Asphalt Binder: AASHTO M320; performance grade PG 64-22.

B. Asphalt Cement: ASTM D946; penetration grade 40-50.

C. Oil: In accordance with State of Michigan Department of Transportation standards.

D. Coarse Aggregate: ASTM D692.

1. Course Stone, 100% crushed limestone meeting 22A and free of shale, frost susceptibility, clay, friable material, sand and debris, equal to Stonemix.

E. Base Course Mix: In accordance with State of Michigan Department of Transportation, 2012 Edition Standards, Bituminous 3C performance, Grade 64-22.

F. Leveling Course Mix: In accordance with State of Michigan Department of Transportation, 2012 Edition Standards. Bituminuous 13A performance, Grade 64-22.

G. Wearing Course Mix: In accordance with State of Michigan Department of Transportation, 2012 Edition Standards, Bituminous 13A performance, Grade 64-22.

H. Reclaimed Asphalt Pavement (RAP): Processed material obtained by milling full depth removal of existing asphalt paving, limited to 30 percent of asphalt base course and 17 percent of asphalt wearing course.

I. Fine Aggregate: ASTM D1073; natural sand or sand manufactured from stone or gravel.

J. Primer: Homogeneous, medium curing liquid asphalt in accordance with State Standards.

K. Mineral Filler: ASTM D242; finely ground mineral particles, free of foreign matter.

2.2 ACCESSORIES

A. Sealant: ASTM D6690, Type II or Type III; hot applied type.

B. Pavement Marking Paint: Alkyd resin type, ready mixed, complying with PS-TT-P-115 Type I or equal.

C. Surface Sealer: Pre-approved product shall be Seal Master Coaltar Concentrate Pavement Sealer and Master Seal Concentrate asphalt based pavement sealer at a one to one mixture or as approved by Engineer/Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify gradients and elevations of base.

B. Verify compacted subgrade subbase is dry and ready to support paving and imposed loads.

3.2 SUBBASE

A. Aggregate Subbase: Install as specified in Section 02300.

B. Prepare subbase in accordance with State of Michigan Department of Transportation standards.

3.3 PRIMER

A. Apply primer on aggregate subbase at uniform rate of 1/3 gal/sq yd.

B. Use clean sand to blot excess primer.

3.4 TACK COAT

A. Apply tack coat on asphalt and concrete surfaces over subgrade surface at uniform rate.
   1. New Surfaces: 1/3 gal/sq yd.
   2. Existing Surfaces: ½ gal/sq yd.

B. Apply tack coat to contact surfaces of curbs and gutters.

C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.

3.5 DOUBLE COURSE ASPHALT PAVING

A. Place asphalt binder course within 24 hours of applying primer or tack coat.

B. Place binder course to thickness identified in schedule at end of section.

C. Place wearing course within 24 hours of placing and compacting binder course. When binder course is placed more than 24 hours before placing wearing course, clean surface and apply tack coat before placing wearing course.

D. Place wearing course to thickness indicated on Drawings.

E. Compact each course by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.

F. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

G. Paint 4” wide pavement markings: Allow pavement to cure 30 days before marking, sweep clean to eliminate loose material and dust, apply at a uniform rate with straight edges to a uniform thickness, minimum 15 mils.
   1. Caution Yellow at standard parking stalls.
   2. Blue at Barrier Free parking stalls.

3.6 ERECTION TOLERANCES

A. Flatness: Maximum variation of ¼ inch measured with 10 foot straight edge.

B. Scheduled Compacted Thickness: Within ¼ inch.

C. Variation from Indicated Elevation: Within ½ inch.

3.7 FIELD QUALITY CONTROL

A. Take samples and perform tests in accordance with AI MS-2.

B. Take samples and perform tests including mat density tests.

C. Asphalt Paving Mix Temperature: Measure temperature at time of placement.

D. Asphalt Paving Thickness: ASTM D3549; test one core sample from every 1000 square yards compacted paving.

E. Asphalt Paving Density: ASTM D2950 nuclear method; test one location for every 1000 square yards compacted paving.

END OF SECTION

SECTION 02750

RIGID PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete paving for:
      a. Concrete sidewalks.
      b. Concrete curbs and gutters.
      c. Concrete parking areas.
      d. Catch Basins

1.2 SYSTEM DESCRIPTION

A. Paving and Base: Designed for parking and light duty commercial vehicles.

1.3 SUBMITTALS

A. Product Data:
   1. Submit data on concrete materials, joint filler, admixtures and curing compounds.

B. Design Data:
   1. Submit concrete mix design for each concrete strength, submit separate mix designs when admixtures are required.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

B. Manufacturer Qualifications: Manufacturer of ready mixed concrete products who complies with ASTM C94/C94M requirements for production facilities and equipment.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Form Materials: Conform to ACI 301.

B. Wood or Steel form material, profiled to suit conditions.

C. Joint Filler: ASTM D1751; Asphalt impregnated fiberboard or felt, ½ inch thick.

2.2 REINFORCING

A. Deformed Reinforcing: ASTM A615/A615M; 60ksi yield strength, steel bars, unfinished.

B. Welded Deformed Wire Fabric: ASTM A497.

C. Bar Supports: Bolsters, chairs, spacers and other devices for spacing supporting and fastening reinforcing bars, welded wire fabric (mesh) and dowels in place. Manufacture bar supports according to 'CRSI's manual of standard practice.

D. Dowels: ASTM A615/A615M; 60 ksi yield strength, plain steel bars; cut to length indicated on Drawings, square ends with burrs removed; unfinished.

E. Tie Wire: Minimum 16 gage annealed type.

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type; gray color.

B. Fine and Coarse Aggregates: ASTM C33, Class 4S.

C. Water: ASTM C94/C94M; potable, without deleterious amounts of chloride ions.

D. Air Entrainment: ASTM C260.

E. Chemical Admixture: ASTM C494/C494M, Type 'B' - Retarding.

F. Plasticizing: ASTM C1017/C1017M Type I, plasticizing.

2.4 ACCESSORIES

A. Liquid Surface Sealer: Clear manufactured by BASF/Sonnborn, Kure-N-Seal curing compound: Apply (2) coats. ASTM C309, Type I, Class B, dissipating.

B. Joint Sealers: Specified in Section 07900.

C. Isolation/Control/Joint Filler Strips: Closed cell backer rod and soft backer rod. ASTM C1330, Type 'B' and 'C'.

2.5 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94 Option A. Furnish batch certificates for each batch discharged and used in the work.
   1. Any concrete failing compressive strength tests will be removed and replaced at the contractors expense.
   2. Contractor shall employ and assist qualified testing lab to cylinder samples.

B. Furnish concrete for the following characteristics:
   1. Compressive Strength at 28 days: 4,000 psi.
   2. Slump: 4 inches maximum.
   3. Maximum water-cementitious materials ratio at point of placement: 0.45
   4. Air Entrainment: ASTM C94/C94M; for severe exposure condition; maximum variation of 1.5 percent from required air content. Required content 4.5 percent.

C. Use accelerating admixtures in cold weather only when approved by the Architect/Engineer in writing. Use of admixtures will not relax cold weather placement requirements.

D. Use set retarding admixtures during hot weather only when approved by the Architect/Engineer in writing.

2.6 FABRICATION

A. Fabricate reinforcing in accordance with CRSI Manual of Practice.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify gradients and elevations of base.

B. Verify compacted subgrade, granular base is ready to support paving and imposed loads by proof rolling with heavy pneumatic - tired equipment to identify soft spots and areas of excessive yielding. Remove areas and stabilize and retest cost for stabilization will be from unit prices and approved via change order.

C. Moisten substrate to minimize absorption of water from fresh concrete.

3.2 FORMING

A. Place and secure forms to correct location, dimension, and profile.

B. Place joint filler in joints, vertical in position, in straight lines. Secure to formwork.

C. Place expansion and contraction joints at 20 foot intervals. Align joints.

D. Place joint filler between paving components and other appurtenances.

3.3 REINFORCING

A. Place reinforcing at mid-height of slabs-on-grade.

B. Interrupt reinforcing at expansion joints. Lubricate one-half of dowel to prevent bond to concrete on one side of joint.

C. Place dowels reinforcing to achieve paving and curb alignment.

3.4 PLACING CONCRETE

A. Place concrete in accordance with ACI 301. Section 03050.

B. Do not disturb reinforcing or formwork components during concrete placement.

C. Place concrete continuously between predetermined joints.

3.5 FINISHING

A. Sidewalk Surfaces: Light broom, radiused and trowel joint edges.

B. Curbs and Gutters: Light broom.

C. Apply curing compound on exposed concrete surfaces immediately after finishing.

3.6 ERECTION TOLERANCES

A. Maximum Variation of Surface Flatness: ¼ inch in 10 ft.

B. Maximum Variation From True Position: ¼ inch.

3.7 FIELD QUALITY CONTROL

A. Perform field testing in accordance with ASTM C94/C94M.

B. Inspect reinforcing placement for size, spacing, location, support.

C. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.

D. Strength Test Samples:
   1. Sample concrete and make one set of three cylinders for every 75 cu yds or less of each class of concrete placed each day and for every 5,000 sf of surface area paving.
   2. Make one additional cylinder during cold weather concreting, and field cure.

E. Field Testing:
   1. Slump Test Method: ASTM C143/C143M.
   2. Air Content Test Method: ASTM C173/C173M.
   3. Temperature Test Method: ASTM C1064/C1064M.

F. Cylinder Compressive Strength Testing:
   1. Test Method: ASTM C39.
   2. Test one cylinder at 7 days.
   3. Test two cylinders at 28 days.

END OF SECTION

SECTION 02831

CHAIN LINK FENCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fence framework, fabric, and accessories.

B. Excavation for post bases; concrete foundation for posts.

1.2 SYSTEM DESCRIPTION

A. Fence Height: Eight feet.

B. Line Post Spacing: At intervals not exceeding 10 feet.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Cyclone Fence Company

B. Anchor Fence Incorporated

C. Southeastern Wire

D. Others as approved by Architect

2.2 MATERIALS

A. Framing (Steel): ASTM A120; Schedule 40 steel pipe, standard weight, one piece without joints.

B. Fabric Wire (Steel): Galvanized steel core wire to be ASTM A-641, tensile strength 75,000 psi, 11 gauge.

C. Concrete: ASTM C94; Normal Portland Cement, 3,000 psi strength at 28 days.

2.3 COMPONENTS

A. Line Posts: 2.38 inch diameter.

B. Corner and Terminal Posts: 2.88 inch.

C. Top and Bottom Rail: 1.66 inch diameter, plain end, sleeve coupled.

D. Bottom Wire: 6 gage thick steel, single strand.

E. Fabric: 1.75 inch diamond mesh interwoven wire, 11 gage thick, top and bottom salvage knuckle end closed.

F. Tension Wire: 6 gage thick steel, single strand at bottom.

G. Tension Band: 1/8 inch thick steel.

H. Tension Strap: ¼ inch thick steel.

I. Tie Wire: Aluminum alloy steel wire.

2.4 ACCESSORIES

A. Caps: Malleable iron galvanized; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

2.5 FINISHES

A. Components and Fabric: Galvanized to ASTM A153, 1.8 oz/sq ft coating.

B. Hardware: Galvanized to ASTM A153, 1.8 oz/sq ft coating.

C. Accessories: Same finish as fabric and posts.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install framework, fabric, accessories in accordance with manufacturer's instructions.

B. Set intermediate and end posts plumb, in concrete footings with top of footing ½ inch above finish grade. Slope top of concrete for water runoff.

C. Line Post Footing Depth Below Finish Grade: 4 feet.

D. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

E. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

F. Position bottom of fabric 1 inch above finished grade.

G. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

H. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

3.2 ERECTION TOLERANCES

A. Maximum Variation From Plumb: ¼ inch.

B. Maximum Offset From True Position: 1 inch.

END OF SECTION

SECTION 02936

SEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Preparation of soil and fertilizer.
   2. Seeding.

1.2 SUBMITTALS

A. Product Data: Submit list of plant material sources, data for fertilizer and other accessories.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Include pruning objectives, types and methods; types, application frequency, and recommended coverage of fertilizer.

1.4 QUALIFICATIONS

A. Nursery: Company specializing in growing and cultivating plant life specified in this section.

1.5 WARRANTY

A. Furnish one year warranty including one continuous growing season including coverage of plants from death or unhealthy conditions.

B. Replacements: Plants of same size and species as specified, planted in next growing season, with new warranty beginning on date of replacement.

1.6 MAINTENANCE SERVICE

A. Maintain seeded areas, sodded areas and plant life immediately after placement until grass and plants are well established and exhibit vigorous growing condition for two cuttings.

PART 2 PRODUCTS

2.1 GRASS

A. Seed Mixture:
   1. Merion Blue Grass: 40 percent.
   2. Kentucky Blue Grass: 35 percent.
   3. Norlea Perennial Rye: 25 percent.

2.2 SOIL AND SOIL MODIFICATION MATERIALS

A. Topsoil: Excavated from site and reused.

B. Fertilizer: Fifty percent of elements derived from organic sources, to the following proportions: Nitrogen 13 percent, phosphoric acid 25 percent, soluble potash 12 percent.

C. Lime: Ground limestone, dolomite type, minimum 95 percent carbonates. As required to adjust soil pH.

2.3 ACCESSORIES

A. Temporary Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Edging: Plastic.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify required underground utilities are in proper location.

B. Remove existing plant life.

C. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

D. Scarify subsoil to depth of 3 inches.

3.2 PLACING TOPSOIL

A. Spread topsoil to minimum depth of 6 inches. Rake smooth.

B. Grade topsoil to eliminate rough, low or soft areas. Slope for positive drainage.

C. Place topsoil into pits and beds intended for plant root balls to minimum thickness of 8 inches.

D. Apply lime at rate recommended by manufacturer.

E. Apply fertilizer at rate recommended by manufacturer.

3.3 SEEDING

A. Hydroseed with seed slurry at rate of 8 lb per 1000 sq ft evenly in two intersecting directions.

B. Immediately following seeding, apply agricultural mulch to thickness of 1/8 inches.

C. Apply water with fine spray immediately after each area has been mulched.

3.4 MAINTENANCE

A. Mow grass at regular intervals to maintain maximum height of 2 ½ inches. Do not cut more than 1/3 of grass blade at each mowing. Two mowings to be included for new areas of seeding.

B. Water to prevent grass and soil from drying out.

C. Control growth of weeds.

END OF SECTION