

BID DOCUMENTS
FOR
FORMER EASTSIDE CLEANERS EXCAVATION SHORING
INSTALLATION
910 EAST MAIN STREET, OWOSSO, SHIAWASSEE COUNTY, MICHIGAN



CITY OF OWOSSO
301 W. MAIN STREET
OWOSSO, MICHIGAN 48867

April 15, 2016

**NOTICE TO BIDDERS
FORMER EASTSIDE CLEANERS EXCAVATION SHORING INSTALLATION,
FOR THE CITY OF OWOSSO, MICHIGAN**

Sealed proposals will be received by the City of Owosso for the **Former Eastside Cleaners Shoring Installation** bid and should be addressed to:

Bid Coordinator
City of Owosso
301 W. Main Street
Owosso, Michigan 48867

Major items include:

- Site Preparation
- Pre-Installation Shoring Design and Workplan Preparation
- Utility Shielding, Relocation, Restoration, and Replacement Necessary to Install and Remove Excavation Shoring
- Pre-Excavation Shoring Installation
- Post Excavation Shoring Removal
- Site Restoration

A **Mandatory Pre-Bid Meeting** will be held at the 910 East Main Street, Owosso, Michigan 48867, on **Thursday April 21, 2016 at 10:00 am local time**. Bids will be accepted until **3:00 p.m. Wednesday, May 04, 2016** for the **FORMER EASTSIDE CLEANERS Excavation SHORING INSTALLATION**, at which time bids will be publicly opened and read aloud at City Hall.

All bids must be in writing and must contain an original signature by an authorized officer of the firm. Electronic bids (i.e., telephonic, fax, email, etc.) are **NOT** acceptable.

All bids must be accompanied by a certified **Cashier's Check or Bid Bond** for a sum of not less than five percent (5%) of the total bid and shall be made payable to the city of Owosso. This amount shall be forfeited in the case of failure on the part of the successful bidder to sign a contract and furnish satisfactory bonds as required within ten (10) consecutive calendar days after the acceptance of the bid by the city of Owosso.

All bids shall clearly contain on the outside of the **sealed** envelope in which they are submitted:

FORMER EASTSIDE CLEANERS Excavation SHORING INSTALLATION, Bid

Hard copies of the proposal, contract forms and specifications are on file and may be obtained for a fee in accordance with the city's FOIA Policy at the office of the Bid Coordinator, City Hall, 301 West Main Street, Owosso, Michigan 48867. Bid documents are available at no charge on our website at www.ci.owosso.mi.us or on the MITN website at www.mitn.info.

The city reserves the right to accept any proposal; or to reject any proposal; to waive irregularities in a proposal; or to negotiate if it appears to be in the best interest of the city of Owosso.

No work can begin before **May 11, 2016** and all work is to be completed by **July 8, 2016**.

INQUIRIES/ADDENDUMS

Addendums will be available on the city's website at www.ci.owosso.mi.us and on the MITN website at www.mitn.info.

All inquiries regarding this bid request must be received at least five (5) calendar days prior to the submission and shall be received in, and responded to, in writing, or via FAX at 989-723-8854 or by e-mail to jane.hunt@ci.owosso.mi.us, and be address to the Bid Coordinator. Call 989-725-0550 to arrange a field inspection.

INSTRUCTIONS TO BIDDERS

1. Bidders are requested to use the Vendor Proposal form furnished by the city when submitting proposals. Bid responses must be in a **sealed** envelope/container when submitted and clearly marked on the outside indicating the name of the bid.
2. Proposals, to receive consideration, must be received prior to the specified time of opening and reading as designated in the invitation.
3. Each proposal must be signed by the bidder with his usual signature. Bids by partnerships should be signed with the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and title of the person signing. Proposals by corporations must be signed with the name of the corporation, followed by the signature and designation of the president, vice-president or person authorized to bind it in the matter. **Any paperwork not filled out properly or signed will cause the bid to be considered non-responsive and shall be rejected by the city.**
4. Proposals having and erasures or corrections thereon may be rejected unless explained or noted over the signature of the bidder.
5. Proposals should be mailed or delivered to the Bid Coordinator's Office, City Hall, 301 W. Main Street, Owosso, MI 48867.
6. Special conditions included in this invitation shall take precedence over any conditions listed under General Conditions or Instructions to Bidders.
7. Insurance Coverage – the winning bidder, prior to execution of the contract, shall file with the city copies of completed certificates of insurance naming the city of Owosso as an additional insured party, as evidence that the contractor carries adequate insurance satisfactory to the city.
8. The city of Owosso has a local preference policy for the purchase of goods and services. The policy in part states: *A business located within the city limits and paying real or personal property taxes to the city of Owosso will be granted a six percent (6%) bid advantage or \$2,500, whichever is less, over a business located outside Shiawassee County. A business located outside the city limits but within Shiawassee County and paying property taxes to the county will be granted a three percent (3%) bid advantage or \$2,500, whichever is less, over a business located outside Shiawassee County. The preference also applies to subcontractors performing twenty-five percent (25%) or more of the work of a general contract.*
9. **The following items must be included with the bid response:**
 - a. **Vendor Proposal / Acknowledgement of Addendum(s)**
 - b. **Local Preference Affidavit**
 - c. **W-9 Request for Taxpayer ID No. and Certification**
 - d. **Bid Bond**

BID Proposal

FORMER EASTSIDE CLEANERS EXCAVATION SHORING INSTALLATION, FOR THE CITY OF OWOSSO, MICHIGAN

TO: THE CITY OF OWOSSO (HEREINAFTER CALLED THE "CITY")

Bidder must provide pricing for each item listed. If additional pricing elements are being offered by the bidder are to be listed under "other services/items offered."

The undersigned, having examined the bid proposal forms and specifications, does hereby offer to **Former Eastside Cleaners Excavation Shoring Installation** from May 11, 2016 through July 8, 2016 listed below at the following prices to wit:

Base Bid Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
1	SITE PREPARATION, PROJECT ADMINISTRATION, AND PROJECT CLOSEOUT			
1a	LS	Pre-Construction Submittals	\$ LS	\$
1b	LS	Mobilization, Demobilization, Weekly Progress Meetings, Project Administration, and Site Services	\$ LS	\$
1c	LS	Project Closeout	\$ LS	\$
2	PROVISIONARY ALLOWANCE (UTILITY RELOCATION/REPLACEMENT, TEMPORARY PROTECTION/SUPPORT/RE-ROUTING)			
2a	LS	Owner's Provisionary Allowance	\$ \$55,000	\$ 55,000
3	EXCAVATION SHORING INSTALLATION AND REMOVAL			
3a	LS	Installation/Removal of Excavation Shoring	\$ LS	\$
3b	15 Tons	Characterization, Removal, Storage, Transport, Disposal of Hazardous Impacted Solids (<Universal Treatment Standard)	\$ /Ton	\$
3c	15 Tons	Characterization, Removal, Storage, Transport, Disposal of Hazardous Impacted Solids (>Universal Treatment Standard)	\$ /Ton	\$
3d	20 Tons	Characterization, Removal, Storage, Transport, Disposal of Non-Hazardous Impacted Solids	\$ /Ton	\$
3e	LS	Characterization, Storage of Hazardous Liquids, Sludges	\$ LS	
3f	2 Events	Loading, Transport, Off-Loading of Hazardous Liquids, Sludges (1 to 5,000 gallons per event)	\$ /Event	\$
3g	10,000 gallons	Disposal of Listed Hazardous Liquids, Sludges (1 to 10,000 gallons)	\$ /Gal	\$
3h	LS	Site Restoration	\$ LS	\$
TOTAL BASE BID AMMOUNT				\$

Bidder's Initial _____

VARIANCE FROM SPECIFICATIONS: If the bidder is unable to comply with the specifications as outlined, the bidder shall clearly note these variations from the specifications. The bidder may also propose additions to these specifications for the city to consider, but the costs associated with these additions shall be stated separately.

Former Eastside Cleaners Excavation Shoring Installation, 910 East Main Street, Owosso, Michigan

The undersigned agrees that if the city accepts this proposal, Contractor will, within 10 consecutive calendar days after receiving notice of this acceptance, enter into a contract to furnish all labor, equipment and tools necessary to execute the work at the unit prices named in the bid proposal. Contractor will furnish the surety for performance, for 100% of this bid, which shall be accepted and approved by the city.

The undersigned agrees that if the city accepts this proposal, Contractor will start this project no sooner than May 11, 2016 and will substantially complete the entire work under this contract by July 8, 2016. This schedule may be extended for rain days or cold weather for calendar days after July 8, 2016, only as approved by the city of Owosso.

On behalf of _____, I hereby submit this proposal for **Former Eastside Cleaners Excavation Shoring Installation** for your consideration. The undersigned acknowledges that this proposal is subject to the General Conditions and the General Specifications included in the contract documents. In submitting this proposal, it is understood that the right is reserved by the CITY to reject any and all proposals, and waive any irregularities in the bidding process. The CITY may award this contract based on any combination of the total bid and/or alternates.

Dated and signed at _____ State of _____

This _____ day of _____, 20____.

Bidder

Witness:

By/s/

Business Address

Signature

Title

Telephone Number

LOCAL PREFERENCE POLICY

The following affidavit should be completed if a bidder is located within Shiawassee County or intends to sub-contract more than twenty-five percent (25%) to a Shiawassee County based business: The city of Owosso has a local preference policy for the purchase of goods and services as recorded in the city ordinance in section 2-348. "Lowest qualified bidder" defined.

1. The term "lowest qualified bidder," as used in this division, shall mean the lowest bidder having qualifications to perform the work which are satisfactory to the council. The lowest bidder shall be determined based on an adjusted bid tabulation which shall be prepared in the following manner: To the bid of any bidder which is neither a city-based business nor a county-based business shall be added an amount equal to six (6) percent of the bid or two thousand five hundred dollars (\$2,500.00), whichever is less.
2. To the bid of any bidder which is a county-based business shall be added an amount equal to three (3) percent of the bid or two thousand five hundred dollars (\$2,500.00), whichever is less; provided, however, that if no bid is received from a city-based business, no additional amount shall be added to the bid of a county-based business.
3. "Owosso-based business" shall be interpreted to mean a business registered with the county clerk or a corporation registered with the state having a business address within the city limits which pays real and/or personal property taxes levied by the city.

The term "county-based business" shall be interpreted to mean a business other than a city-based business registered with the county clerk or a corporation registered with the state having a business address within the county which pays real and/or personal property taxes levied by the county.

4. If twenty-five (25) percent or more of a contract for construction or other services is to be subcontracted by a city-based business bidder to a non-city-based business or businesses, or by a county-based business bidder to a non-county-based business or businesses, the adjusted bid shall be calculated by applying the provisions of this section separately to each portion of the contract based on the status of the contractor or subcontractor performing that portion of the contract as a city-based or county-based business.

AFFIDAVIT

In accordance with Section 2-348 of the Owosso city code, the bid from a business located in Shiawassee County shall be adjusted to reflect a preference. In order for the city to calculate the adjustment, the bidder hereby deposes and states that their business address is registered, and is currently paying real and/or personal property taxes in Shiawassee County at the following address:

Registered business address

The affiant further deposes and states that a sub-contract with a business registered, and paying real and/or personal property taxes in Shiawassee County will be executed for a percentage equal to or greater than twenty-five percent (25%) as stated below:

Business name and address of sub-contractor

Percentage of contract

Authorized signature

Date

Title

Company name

SIGNATURE PAGE AND LEGAL STATUS

The undersigned certifies that he is an official legally authorized to bind his firm and to enter into a contract should the city accept this proposal.

Bid proposal by _____
(Name of Firm)

Legal status of bidder. Please check the appropriate box and **USE CORRECT LEGAL NAME.**

A. Corporation ____ ; State of Incorporation _____

B. Partnership ____ ; List of names _____

C. DBA ____ ; State full name _____ DBA

D. Other ____ ; Explain _____

Signature of Bidder _____ Title _____
(Authorized Signature)

Signature of Bidder _____ Title _____
(Authorized Signature)

Address _____ City _____ Zip _____

Telephone () _____

Signed this _____ day of _____ 20_____.

Bidder acknowledges receipt of the following Addenda:

ADDENDUM NO.	BIDDER'S INITIALS
_____	_____
_____	_____
_____	_____

W-9 INFORMATION FOR LEGAL STATUS

Sole proprietor. Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name/disregarded entity name" line.

Partnership, C Corporation, or S Corporation. Enter the entity's name on the "Name" line and any business, trade, or "doing business as (DBA) name" on the "Business name/disregarded entity name" line.

Disregarded entity. Enter the owner's name on the "Name" line. The name of the entity entered on the "Name" line should never be a disregarded entity. The name on the "Name" line must be the name shown on the income tax return on which the income will be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a domestic owner, the domestic owner's name is required to be provided on the "Name" line. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on the "Business name/disregarded entity name" line. If the owner of the disregarded entity is a foreign person, you must complete an appropriate Form W-8.

Note. Check the appropriate box for the federal tax classification of the person whose name is entered on the "Name" line (Individual/sole proprietor, Partnership, C Corporation, S Corporation, Trust/estate).

Limited Liability Company (LLC). If the person identified on the "Name" line is an LLC, check the "Limited liability company" box only and enter the appropriate code for the tax classification in the space provided. If you are an LLC that is treated as a partnership for federal tax purposes, enter "P" for partnership. If you are an LLC that has filed a Form 8832 or a Form 2553 to be taxed as a corporation, enter "C" for C corporation or "S" for S corporation. If you are an LLC that is disregarded as an entity separate from its owner under Regulation section 301.7701-3 (except for employment and excise tax), do not check the LLC box unless the owner of the LLC (required to be identified on the "Name" line) is another LLC that is not disregarded for federal tax purposes. If the LLC is disregarded as an entity separate from its owner, enter the appropriate tax classification of the owner identified on the "Name" line.

Other entities. Enter your business name as shown on required federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name/disregarded entity name" line.

Please see attached W-9 Request for Taxpayer Identification Number and Certification form for a detailed explanation on filling out the W-9 form.

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <input type="checkbox"/> Other (see instructions) ▶ _____	
	<input type="checkbox"/> Exempt payee	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
City, state, and ZIP code		
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Employer identification number									

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

PROOF OF INSURANCE

This is to certify that the following endorsement is part of the policy(ies) described below:

NAMED INSURED (CONTRACTOR)	<u>COMPANIES AFFORDING COVERAGE</u>
ADDRESS	A. B. C.

It is hereby understood and agreed that the city of Owosso, its city council and each member thereof and every officer and employee of the city shall be named as joint and several assureds with respect to claims arising out of the following project:

FORMER EASTSIDE CLEANERS EXCAVATION SHORING INSTALLATION, 910 EAST MAIN STREET, OWOSSO, MICHIGAN

It is further agreed that the following indemnity agreement between the city of Owosso and the named insured is covered under this policy: Contractor agrees to indemnify, hold harmless and defend city, its city council and each member thereof and every officer and employee of city from any and all liability or financial loss resulting from any suits, claims, losses or actions brought against and from all costs and expenses of litigation brought against city, its city council and each member thereof and any officer or employee of city which results directly or indirectly from the wrongful or negligent actions of contractor's officers, employees, agents or others employed by Contractor while engaged by contractor in the (performance of this agreement) construction of this project.

It is further agreed that the inclusion of more than one assured shall not operate to increase the limit of the company's liability and that insurer waives any right on contribution with insurance which may be available to the city of Owosso.

The contractor, or any of their subcontractors, shall not commence work under this contract until they have attained the insurance required below, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to the city of Owosso. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.

The Contractor shall procure and maintain the following insurance coverage:

1. **Worker's Compensation Insurance** including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.
2. **Commercial General Liability Insurance** on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included.
3. **Automobile Liability** including Michigan No-Fault Coverages, with limits of liability not less than \$1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.
4. **Additional Insured:** Commercial General Liability and Automobile Liability, as described above, shall include an endorsement stating the following shall be **Additional Insureds:** City of Owosso, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming City of Owosso as additional insured, coverage afforded is considered to be primary and any other insurance the city of Owosso may have in effect shall be considered secondary and/or excess.

5. **Cancellation Notice:** All policies, as described above, shall include an endorsement stating that it is understood and agreed that a Ten (10) days notice for non-payment of premium is required and a Thirty (30) days notice is required for Non-Renewal, Reduction, and/or Material Change, shall be sent to: City of Owosso, Bid Coordinator, 301 W. Main Street, Owosso, Michigan 48867.

6. **Proof of Insurance Coverage:** The Contractor shall provide the city of Owosso, at the time that the contracts are returned by him/her for execution, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and endorsements to the city of Owosso at least ten (10) days prior to the expiration date.

Please include a copy of insurance declaration verifying amounts of coverage. The verification of insurance is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

DATE _____

BY _____
Authorized Insurance Agent

AGENCY _____

TITLE _____

ADDRESS _____

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DIVISION 00
GENERAL CONDITIONS

GENERAL CONDITIONS

1. LOCAL PREFERENCE POLICY

The city of Owosso has a local preference policy for the purchase of goods and services. The policy in part states: *A business located within the city limits and paying real or personal property taxes to the city of Owosso will be granted a 6% bid advantage or \$2,500, whichever is less, over a business located outside Shiawassee County. A business located outside the city limits but within Shiawassee County and paying property taxes to the county will be granted a 3% bid advantage or \$2,500, whichever is less, over a business located outside Shiawassee County. The preference also applies to subcontractors performing 25% or more of the work of a general contract.*

2. BID ACCEPTANCE

The city reserves the right to reject any or all proposals. Unless otherwise specified, the city reserves the right to accept any item in the proposal. In case of error in extending the total amount of the bid, the unit prices shall govern.

3. PAYMENT

Unless otherwise stated by the bidder, time, concerning discount offered, will be computed from date of delivery and acceptance at destination or from date correct bill or claim voucher properly certified by the contractor is received. When so stated herein, partial payments, based on a certified approved estimate by the city of materials, supplies or equipment delivered or work done, may be made upon presentation of a properly-executed claim voucher. The final payment will be made by the city when materials, supplies, equipment or the work done have been fully delivered or completed to the full satisfaction of the city.

4. BID DEFAULT

In case of default by the bidder or contractor, the city of Owosso may procure the articles or services from other sources and hold the bidder or contractor responsible for any excess cost occasioned thereby.

5. UNIT PRICES

Prices should be stated in units of quantity specified.

6. QUOTED PRICES

Unless otherwise stated by the bidder, prices quoted will be considered as being based on delivery to a designated destination and to include all charges for packing, crating, containers, shipping, etc., and being in strict accordance with specifications and standards as shown.

7. SUBSTITUTIONS

Wherever a reference is made in the specifications or description of the materials, supplies, equipment, or services required, to a particular trade name, manufacturer's catalog, or model number, the bidder, if awarded a contract or order, will be required to furnish the particular item referred to in strict accordance with the specifications or description unless a departure or substitution is clearly noted and described in the proposal.

8. HOLD CITY HARMLESS

The bidder, if awarded an order or contract, agrees to protect, defend, and save the city harmless against any demand for payment for the use of any patented material, process, article, or device that may enter into the manufacture, construction, or form a part of the work covered by either order or contract. Bidder further agrees to indemnify and save the city harmless from suits or action of every nature and description brought against it, for or on account of any injuries or damages received or sustained by any party or parties, by or from any of the acts of the contractor, his employees, subcontractors, or agents.

9. COMPETITIVE BIDDING STATUTES

The laws of the state of Michigan, the charter and ordinances of the city of Owosso, as far as they apply to the laws of competitive bidding, contracts and purchases, are made a part hereof.

10. SAMPLES

Samples, when requested, must be furnished free of expense to the city and, if not destroyed, will upon request be returned at the bidder's expense.

11. BONDS

A certified check or bid bond may be required, payable to the City of Owosso. If so required in the bid documents, a performance bond and labor and material bond in the amounts stated in the bid documents, shall be on file with the city before work commences. The city will determine the amount and sufficiency of the sureties.

12. PROPOSAL GUARANTEE

All checks or bid bonds except those of the three lowest bidders will be returned when the bids have been opened and tabulated. The certified checks or bid bonds of the three lowest bidders will be held until the contract documents have been signed, after which remaining certified checks or bid bonds will be returned to the respective bidders.

13. BIDDERS

The city may demand that the contractor file a sworn experience and financial statement setting forth the financial resources, adequacy of plant and equipment, organization, experience and other pertinent and material facts as may be desirable.

14. DAMAGE LIABILITY AND INSURANCE

The contractor shall save harmless and indemnify the city and its employees against all claims for damages to public or private property and for injuries to persons arising during the progress and because of the work.

- a. Workers' compensation insurance - The contractor, before the execution of the contract, shall file a certification that the contractor carries workers' compensation insurance.
- b. Bodily injury and property damage - The contractor, before execution of the contract, shall file with the city copies of completed certificates, of insurance acceptable to the city naming the city as an insured party. The coverage shall afford protection against damage claims to public or private property, and injuries to persons, arising out of and during the progress of the work, and to its completion and, where specified in the proposal, similar insurance to protect the owners of premises on or near which construction operations take place.
- c. Bodily injury and property damages other than automobile - Unless otherwise specifically required by special provisions in the proposal, the minimum limits of property damage and bodily injury liability covering each contract shall be:

Bodily injury and property damage liability:

Each occurrence: \$1,000,000

Aggregate: \$2,000,000

Such insurance shall include, but not be limited to, coverage for: a) underground damage to facilities due to drilling and excavating with mechanical equipment and b) collapse or structural injury to structures due to blasting or explosion, excavation, tunneling, pile driving, cofferdam work, or building moving or demolition.

- d. Owners' protective liability - Bodily injury and property damage protection shall be extended to the city.

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- e. Bodily injury liability and property damage liability automobiles - Unless otherwise specifically required by special provisions in the proposal, the minimum limits of bodily injury liability and property damage liability shall be:

Bodily injury liability:

Each person: \$ 500,000

Each occurrence: \$1,000,000

Property damage liability:

Each occurrence: \$1,000,000

Combined single limit for bodily injury and property damage liability:

Each occurrence: \$2,000,000

- f. Notice - The contractor shall not cancel or reduce the coverage of any insurance required by this section without providing 30-day prior written notice to the city. All such insurance must include an endorsement under which the insurer shall agree to notify the city immediately of any reduction by the contractor. The contractor shall cease operations on the occurrence of any such cancellation or reduction, and shall not resume operations until new insurance is in force.
- g. Reports - At the request of the city, the contractor or the contractor's insurance carrier shall report claims received, inspections made, and disposition of claims.

15. PROTECTION OF LAND MONUMENTS AND PROPERTY STAKES

Land monuments or stakes marking property corners shall not be moved or otherwise disturbed except as directed by the city. If any land monuments or lot stakes are moved or disturbed by the contractor, the cost of replacing each land monument or lot stake so moved or disturbed shall be deducted from any money due the contractor, as payment to the city for the cost of replacing said land monument or lot stakes.

16. CONTRACTOR'S RESPONSIBILITY FOR WORK

The contractor shall be responsible for any damages that the work may sustain before its acceptance, and shall rebuild, repair, restore and make good, at its own expense, all injuries and damages to any portion of the work by the action of the elements or from any cause whatsoever before its acceptance. Neither the final payment nor any provision in the contract documents shall relieve the contractor of the responsibility for negligence or faulty materials or workmanship within the extent and period provided by law, and, upon written notice, the contractor shall remove any defects due therefrom and pay for any damaged due to other work resulting therefrom, which shall appear within one year after the date of completion and acceptance.

17. PAYMENT

At monthly intervals commencing after construction has been started, the city will make partial payment to the contractor based on a duly-certified estimate prepared by the city of the work done by the contractor during the preceding four-week period. Each estimate will be submitted to the city council for approval on either the first or third Monday of each month. The city will retain ten percent (10%) of the amount of each such estimate until final completion and acceptance of all work covered by this contract.

Before the contractor shall demand final estimates or payment, contractor will furnish to the city, supported by sworn statements, satisfactory evidence that all persons that have supplied labor, materials, or equipment for the work embraced under this contract have been fully paid for the same; and that, in case such evidence be not furnished as aforesaid, such sums as the city may deem necessary to meet the lawful claims of such persons may be retained by the city from any monies that may be due or become due to the contractor under this contract until such liabilities shall be fully discharged and the evidence thereof be furnished to the city.

18. CITY'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

Former Eastside Cleaners Excavation Shoring Installation, 910 East Main Street, Owosso, Michigan

Besides the payment to be retained by the city under the preceding provisions of these general conditions, the city may withhold a sufficient amount of any payment otherwise due to the contractor to cover a) payments earned or due for just claims for furnish labor or materials on the project under this contract, b) for defective work not remedied and c) for failure of the contractor to make proper payments to subcontractors. The city shall disburse and shall have the right to act as agent for the contractor in disbursing such funds as have been previously withheld pursuant to this paragraph to the party or parties who are entitled to payment from it. The city will pay to the contractor a proper accounting of all such funds disbursed for the contractor.

19. OWNER'S RIGHT TO DO WORK

If the contractor should neglect to prosecute the work properly or fail to perform any provisions of this contract, the city, after three (3) days' written notice to the contractor and contractor's surety, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost of it from the payment due the contractor.

20. DEFINITION OF NOTICE

Where in any of the contract documents there is any provision in respect to the giving of notice, such notice shall be deemed given to the owner, when written notice is delivered to the city manager, or placed in the United States mail addressed to the city clerk; as to the contractor, when a written notice shall be delivered to contractor's representative at the project site or by mailing such written notice in the United States mail addressed to the contractor at the place stated in the bid proposal as the business address; as to the surety on the performance bond, when a written notice is placed in the United States mail addressed to the surety at the surety's home office or to its agent or agents who executed such performance bond on behalf of the surety.

21. SUBCONTRACTS

The contractor shall not subcontract any work in the execution of this contract without the written consent of the city. The contractor shall be responsible for the acts or omissions of any subcontractor and of anyone employed directly or indirectly by such subcontractor.

22. ASSIGNMENT OF CONTRACT

The contractor shall not assign this contract or any part hereof without the written consent of the city. No assignment shall be valid unless it shall contain a provision that any funds to be paid to the assignee under this agreement are subject to a prior lien for services rendered or materials or supplies for the performance of the work specified in the contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

23. MAINTAINING TRAFFIC

The contractor shall provide flares, signs, barricades, traffic regulators, etc., to conform to the current *Michigan Manual of Uniform Traffic Control Devices* or as directed by the city. The contractor shall not close any road or street without the permission of the city. If any street or road is to be closed by the contractor, it shall be the responsibility of the contractor to notify the Owosso fire department when the street will be closed and again when the street is open to traffic. Traffic control devices for any detours deemed necessary by the city shall be provided by the contractor. Cost of maintaining shall be incidental to the cost of the project unless otherwise provided.

24. ORDER OF COMPLETION

The contractor shall submit, whenever requested by the city, a schedule of the work showing completion dates. The city may request that certain portions of the work be done before other portions. If so requested, the contractor shall arrange to schedule to meet the request by the owner.

25. USE OF COMPLETED PORTIONS

The city shall have the right to take possession and use any completed or partially completed portions of the work; but such taking possession and use shall not be deemed acceptance. Pending final completion and acceptance of the work, all necessary repairs and adjustments on any section of the work due to

Former Eastside Cleaners Excavation Shoring Installation, 910 East Main Street, Owosso, Michigan

defective material, workmanship, natural causes, or other operations of the contractor, other than normal wear and tear, shall be done by and at the expense of the contractor.

26. WATER SUPPLY

The contractor shall arrange for securing an adequate water supply for use in construction and for drinking water for his employees. If the city's water is used on the work, the contractor shall make the necessary application and shall pay all costs involved. Connections, piping and the contractor shall furnish and maintain fittings for conveying water. Contractor shall pay for water according to the city's established rates.

27. CLEANUP

The contractor shall keep the project free from waste materials or rubbish caused by its employees or work. This includes as a minimum excess excavation or backfill material, broken or rejected materials, empty containers or general debris. The owner may require complete cleanup of certain areas as construction is completed.

28. SUPERVISION

The contractor shall have a superintendent on the job site to coordinate and expedite the various construction activities for the duration of this contract.

29. EQUAL EMPLOYMENT OPPORTUNITY AND OTHER CLAUSES

The contractor shall agree not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined by Michigan Compiled Statutes, or national origin. This provision shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rate of pay or other forms of compensation, and selection for training including apprenticeship. The contractor further agrees to take affirmative action to ensure equal employment opportunities for persons with disabilities. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provision of the non-discrimination clause.

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01010 SUMMARY OF WORK

1. General

1.1 General information covering the "Scope of Work" is as follows:

a) Site Information

Site Location/Description

The Site consists of one parcel, which was combined from four legal parcels with street addresses of 830, 832, 834, and 910 East Main Street, in Owosso, Shiawassee County, Michigan. The Site is listed under the new combined parcel number of 050-580-000-070-00, totals 0.68 acres, has an address of 910 East Main Street, and is owned by Southwind Restaurant, LLC.

Standard and other historical sources document that prior Ownership of the eastern 910 East Main Street building was listed as East Side Super Service beginning in the early 1930s, and Palmer's Sales and Service Filling Station in 1945. The subject property was likely operating as a filling station and automotive service garage until the early 1960s. The subject property operated as a drycleaners under various names from the late 1960s until 2012, including John's One Hour Martinizing & Shirt Laundry; One Hour Martinizing & Shirt Laundry; Munley Co; and Eastside Cleaners.

The residential buildings formerly addressed 830, 832, 834 East Main Street, were demolished in January 2016, including removal of foundations and abandonment of sub-grade utility leads (i.e. sanitary sewer, water, and natural gas). Above-grade portions of the former 910 East Main Street (former drycleaner) building were also demolished in January 2016. However the floor slab, footings, and associated buried utility leads (i.e. sanitary sewer, water, and natural gas) to the former building were left in place.

Exterior portions of the Site consist of concrete parking lot pavement and sidewalk areas surrounding the former 910 East Main Street building to the west, east, and south, and areas of groomed grass and landscaping to the north, east, and south. Areas surrounding the former residential buildings west of the concrete parking lot, consist of grass/landscaping, and areas of graded foundation fill.

An unpaved alleyway adjoins the Site to the south, beyond which residential properties are located. Adjoining properties to the north and east consist of commercial properties. Residential properties adjoin the Site to the west.

Utilities

Figure 2 in Appendix B of the Bid Documents depicts the approximate location of buried sanitary sewer, storm sewer, water, and natural gas utilities at the Site and within the adjoining East Main Street (M-21) and South Gould Street right-of-ways (ROWs), based on Miss Dig markings observed during previous subsurface investigations. Overhead electrical utilities with corresponding telecommunications utilities are also present at the Site and in the adjoining East Main Street and South Gould Street ROWs.

On-Site Building

The residential buildings formerly addressed 830, 832, 834 East Main Street, were demolished in January 2016, including removal of foundations and abandonment of sub-grade utility leads (i.e. sanitary sewer, water, and natural gas). Above-grade portions of the former 910 East Main Street (former drycleaner) building were also demolished in January 2016. However the floor slab, footings, and associated buried utility leads (i.e. sanitary sewer, water, and natural gas) to the former building were left in place.

No other building structures exist at the subject property.

b) Contamination Assessment Data

Global Environmental Engineering (GEE) completed a Phase I Environmental Site Assessment (ESA) for the Site on October 7, 2014.

Recognized Environmental Conditions identified as part of the GEE Phase I ESA are outlined below.

- Based on review and the completion of a previous Phase I ESA, the subject property (910 East Main, eastern building) historically operated as a gasoline station and automotive service garage from the late 1920's to early 1960s and a drycleaners from the late 1960s to 2012. A BEA was completed for the subject property in August 2012 by Rubob Real Estate LLC and Crowne Point Properties LLC indicating the presence of 1,2,4-trimethylbenzene, n-propylbenzene, n-butylbenzene, cis-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene in the groundwater.
- The subject property (formerly) known as 834 East Main Street is a residential parcel located adjacent to the 910 East Main Street (eastern most building) parcel. During previous investigations, the 910 East Main street parcel was not delineated as part of the scope of work. The potential exists that the historical use of the 910 E Main Street parcel could have negatively affected the 834 East Main Street parcel.

GEE completed a Phase II investigation in 2012, which included a subsurface investigation on the subject property consisting of eight (8) soil borings (SB-1 through SB-8) to depths between 12 and 16 feet below surface grade, and the collection of soil and groundwater samples for laboratory analysis of volatile organic compounds (VOCs), polynuclear aromatic compounds (PNAs), cadmium, chromium, and lead, or some combination thereof. Additional subsurface investigation activities were conducted by PM Environmental, Inc. (PM) in April and November 2015, which included 22 soil borings (PSB-1 through PSB-22) to a maximum depth of 25.0 feet below ground surface (bgs), and the collection of soil and groundwater samples for laboratory analysis of VOCs.

Soil Data

Subsurface geology at the subject property generally consists of interbedded layers of sand and clay to a depth of 25.0 feet bgs, the maximum depth explored. Soil boring logs for soil borings advanced by GEE and PM in 2012 and 2015 are included in Appendix C of the Bid Documents.

Analytical results of soil samples collected from the subject property documented the presence of benzene, sec-butylbenzene, cis-1-2-dichloroethylene, ethylbenzene, naphthalene, n-propylbenzene tetrachloroethylene, toluene, trichloroethylene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, and xylenes concentrations in soil above the Part 201 Residential and Nonresidential Groundwater Surface Water Interface Protection (GSIP), Drinking Water Protection (DWP), Direct Contact (DC), and/or Soil Volatilization to Indoor Air (SVII) cleanup criteria, with concentrations of tetrachloroethylene also identified above the Soil Saturation (Csat) screening levels.

The highest soil concentrations are present at or above the apparent water table in areas north and east of the former 910 East Main street building, and extend laterally to the south and east with the highest concentrations in those areas generally correlating with capillary fringe soils located above the water table. The horizontal and vertical extent of soil concentrations exceeding the Part 201 Residential and Nonresidential cleanup criteria has not been fully defined to the north, east, and south. However, the horizontal extent of soil concentrations within the Site boundaries above the water table that exceed the Part 201 Residential and Nonresidential SVII cleanup criteria and Csat screening levels have generally been defined.

Groundwater Data

Perched groundwater was generally encountered at the sand/clay interface or within sand seams interbedded within clay, at depths between 7.0 and 10.0 feet bgs, with groundwater encountered at progressively deeper intervals towards the south property boundary. The perched groundwater is not representative of an aquifer but due to the interbedded nature of sand and clay geology at the Site may be in communication with a lower aquifer. Soil boring logs including temporary monitoring well installation diagrams for temporary monitoring wells installed at the site by GEE and PM in 2012 and 2015 are included in Appendix C of the Bid Documents.

Analytical results of groundwater samples collected from the subject property documented the presence of benzene, cis-1-2-dichloroethylene, ethylbenzene, naphthalene, n-propylbenzene, tetrachloroethylene, trichloroethylene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, and xylenes concentrations in groundwater above the Part 201 Residential and Nonresidential Groundwater Surface Water Interface (GSI) and/or Drinking Water (DW), cleanup criteria. Concentrations of benzene, cis-1-2-dichloroethylene, tetrachloroethylene, trichloroethylene, and vinyl chloride, also identified above the MDEQ Residential and Nonresidential Vapor Intrusion Screening Levels (VISLs).

The highest groundwater concentrations are located at or above the apparent water table in areas north and west of the former 910 East Main Street building, and extend laterally to the south and east. The horizontal and vertical extent of groundwater concentrations exceeding the Part 201 Residential and Nonresidential cleanup criteria has not been fully defined to the north, east, and south.

Remediation Approach

Remediation (soil excavation) activities will be conducted on the eastern portion of the site by the Remediation Contractor under a separate contract with the State of Michigan to remove soils within the property boundaries located above the water table that contain contaminant concentrations exceeding the Part 201 Residential and Nonresidential SVII cleanup criteria and/or Soil Saturation (Csat) screening levels. Refer to Figure 3 located in Appendix B of the Bid Documents for the proposed boundaries of the excavation area, the maximum depth of which is proposed to be 10.0 feet below ground surface.

Multiple funding sources are being utilized to complete the remediation activities, including Michigan Department of Environmental Quality (MDEQ) Grant and Loan Funds, and MDEQ Strategic Water Quality Initiatives Funds, as indicated on Figure 3A located in Appendix B of the Bid Documents. Excavation of contaminated soils will require the installation of excavation shoring (sheet piling) along the northern and eastern boundaries of the site, including areas along the East Main Street and South Gould Street ROWs. Utility shielding and/or relocation is required to install the required excavation shoring, all of which will be funded using MDEQ Grant Funds, under contract with the City of Owosso.

1.2 Objectives

- a) General information covering the "Scope of Work" is specified on the Bid Proposal. The objectives for the project are as follows:
 - 1) Site Preparation
 - 2) Utility Relocation/Replacement, Temporary Protection/Support/Re-Routing
 - 3) Excavation Shoring Installation ahead of contaminated soil excavation and backfilling by the Remediation Contractor
 - 4) Excavation Shoring Removal and Decontamination following contaminated soil excavation and backfilling by the Remediation Contractor
 - 5) Site restoration.
- b) A more detailed list of work is included in "Site Work Summary" (Section 02100).

1.3 Contract

- a) The Work shall be completed under a single contract with City of Owosso.

1.4 Contractor Personnel Requirements

- a) Furnish a list of contact personnel for the Contractor and lower tier subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and update the information contained in the previous lists.
- b) On-site personnel must be properly trained, licensed and equipped. At a minimum, all on-site personnel training must include attendance of a 40-Hour Hazardous Waste Site Operator's course that complies with the provisions outlined in 29 CFR 1910.120, as amended, and Part 432 of Section 24 of Michigan 1974 Public Act 154, as amended. In addition, all personnel must be current with their respective 8-Hour HAZWOPER Refresher Course requirements (within the last 365 days, where applicable) and medical surveillance. Contractor must provide evidence of training for all on-Site personnel prior to personnel entering the Site. Personnel that do not provide evidence of training will not be allowed on Site.
- c) Transport companies and personnel must be properly trained, licensed and insured. Contractor must provide evidence of licensing for all transport personnel and vehicles. Contractor must provide evidence of insurance for all transport vehicles.

1.5 Contractor Access and Use of Premises

- a) The Contractor shall:
 - 1) Ensure Contractor personnel employed on the Site become familiar with all rules and restrictions of Local, State and Federal agencies having jurisdiction.
 - 2) Keep within the limits of the work and avenues of ingress and egress identified in the approved Work Plan.
 - 3) Conspicuously mark all Contractor equipment for identification.
 - 4) Assume full responsibility for protection and safekeeping of products, materials and equipment stored on or off the premises.
 - 5) Move stored material and equipment that may interfere with the operations of City of Owosso, Professional Services Contractor (Professional), Property Owner, neighboring property owner, or other contractors.
 - 6) Contractor shall NOT enter properties in which prior written access has not been obtained. Written access will be obtained and coordinated by City of Owosso and/or Professional. The Contractor must have written confirmation of access prior to entering.
 - 7) Contractor shall utilize all measures necessary to ensure all potential for environmental impacts from construction activities are mitigated.
 - 8) The Contractor shall ensure safe access for pedestrians and vehicles in the right-of-ways along the northern and eastern borders of the Site at all times during the Work.
 - 9) Make every reasonable effort to ensure the safety of the non-Work personnel.
 - 10) Provide all necessary City, Township, County and State permits and licenses to conduct the Work.

1.6 Protection

- a) The primary goal of the Work is to install sheet piling as a means of excavation shoring, to facilitate excavation/removal of "source area" soil contamination to a maximum depth of 10.0 feet below ground surface within the bounds of the Site that is located at or above the water table, which exceeds the MDEQ Residential and Nonresidential SVII cleanup criteria and Csat Screening Levels associated with historical dry cleaning operations. The excavation/removal activities will be conducted by an excavation contractor retained by the State of Michigan (State).

The potential maximum excavation limits to the north, east, and south include the East Main Street ROW, South Gould Street ROW, and the south adjoining alleyway, respectively. Based on the soil boring data, the estimated limits of excavation are within the potential maximum limits which are defined for potential variances due to actual contaminant distribution. Excavation shoring installation is required along the northern and eastern property boundaries adjacent to the East Main Street and South Gould

Street ROWs.. The proposed excavation limits and excavation shoring limits are depicted in Figure 3A - Proposed Excavation Area in Appendix B of the Bid Documents.

END OF SECTION 01010

SECTION 01020 ALLOWANCES

1. Allowances

1.1 Provisional Allowances:

- (a) Bidders must include in their Base Proposal Sum a contingency allowance of \$55,000. The base bid shall include bonds and insurance on the value of the allowance.
- (b) Monies will be used in the provisional allowance only for Utility Relocation/Replacement, Temporary Protection/Support/Rerouting activities described in "Existing Utilities and Underground Structures" (Section 02150), as directed in writing by the Professional.
- (c) Payments under the Provisionary Allowance will include not only the purchase/furnished cost of the materials and equipment involved, but also all related labor costs, subcontract costs, construction equipment costs, general conditions costs and Fee (maximum of 5%), provided they are calculated in accordance with the requirements of the contract documents.
- (d) Unused allowances will be deducted from the contract amount through contract change order.

SECTION 01025 MEASUREMENT AND PAYMENT

1. General

1.1 Description

- a) Schedule of Values: Submit a Schedule of Values to the Professional before the construction start date for review and approval, of the various tasks that must be performed to complete all the Work.
 - 1) The Schedule of Values must show each task and the corresponding value of the task, including separate monies allocated for General Condition items and Project closeout.
 - 2) The Schedule of Values for lump sum line pricing must provide sufficient breakdown costs if the Contractor intends to submit monthly invoicing for partial payments. If lump sum payments are left as full values in the Schedule of Values, single payment for the lump sum item will be made after the lump sum item has been completed per the Contract requirements.
 - 3) The aggregate total value for all tasks must be equal to the total Contract sum.
- b) The items listed in Paragraph 1.6 of this Section (Section 01025) refer to and are the same pay items listed in the Bid Schedule. They constitute all of the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory works, mobilization, equipment costs, plant services, layout surveys, job signs, road detour/signage, sanitary requirements, testing, safety devices, water supplies, power, maintaining traffic, removal of wastes, watchmen, bonds, insurance, and all other requirements or conditions of the Contract Documents. Compensation for any such services and materials shall be included in the prices stipulated for the lump sum and/or unit price pay items listed herein.
- c) Each lump sum and/or unit price will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor's overhead and profit for each separately identified item.
- d) Payment shall be for pay items on the Bid Schedule. All Work in these specifications shall be covered in the listed pay items.
- e) Payment to the Contractor will be made in accordance with the Contract Documents.
- f) For lump sum items, the Contractor will be paid on the basis of actual Work completed and accepted. One hundred percent of the Contract price for the Work completed and accepted may be paid, subject to the limitations of the Contract Documents.
- g) For unit price items, the Contractor will be paid for the actual amount of Work completed and accepted. The amount will be in accordance with the prices submitted on the bid schedule.
- h) All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by City of Owosso and Professional.

1.2 Estimate Of Quantities

- a) The estimated quantities for unit price pay items, as listed in the Bid Schedule, are approximate only and are included solely for the purpose of comparison of Bids. The City of Owosso and Professional do not express or by implication agree that the actual quantities of material encountered or required, will correspond with the Bid Schedule. The City of Owosso and/or Professional reserve the right to increase, decrease, or eliminate any quantity they deem necessary.
- b) When alterations in quantities up to plus or minus 50 percent of the original estimated quantity of Work are performed, the Contractor will not be entitled to any adjustments in the unit bid price. The Contractor agrees to accept the aforementioned unit bid prices as complete and total compensation for the increased or decreased quantity.
- c) When quantities fall within alternate quantity ranges (greater than +/- 50 percent of the original estimated quantity) provided in the Bid Schedule, the unit bid price identified for the alternate quantity range shall be used for complete and total compensation.

When quantities fall beyond the alternate quantity ranges (when provided), the Contractor will be required to document all labor, material, and equipment costs related to the increased/decreased quantity.

- d) When alterations in quantities greater than plus or minus 50 percent of the original estimated quantity of Work are performed and alternate quantity ranges/unit prices are not provided, the Contractor will be required to document all labor, material, and equipment costs related to the increased/decreased quantity. Payment to the Contractor shall be made in accordance with the General Conditions of the Bid Proposal.

1.3 Scope Of Payment

- a) Payments to the Contractor will be made for the actual quantities of the contract items performed and accepted in accordance with the Contract Documents upon completion of the Work. Upon completion of the work, if the actual quantities show an increase/decrease from the quantities given in the Bid, the Contract unit prices will prevail, except as provided within the Contract Documents. The City of Owosso and/or Professional reserve the right to increase or decrease the quantity of work to be performed.
- b) The Contractor shall accept compensation, as herein provided, as full payment to furnish all materials, labor, tools, equipment, and incidentals necessary to the complete the Work; for performing all work contemplated and embraced by the Contract Documents; for all loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the execution of the Work and until its final acceptance by the City of Owosso and the Professional; for all risks of every description connected with the execution of the Work except as provided herein; and for all expenses incurred in consequence of the suspension of the Work as herein authorized.
- c) No extra payment will be made to the Contractor for any expense or delays caused by revision of inadequate submittals; lack of progress; defective workmanship; rescheduling of work by other contractors, subcontractors, or equipment and material suppliers; or due to the City of Owosso's or Professional's rejection of any disposal facility, recycling facility, or material source.
- d) Additional costs caused by ill-timed or defective Work, or Work not conforming to the Contract Documents, shall be incurred solely by the Contractor.
- e) Work completed shall be invoiced on a monthly basis. Only Work completed to date shall be invoiced. The Contractor is responsible for providing documentation verifying completion of the Work being invoiced, and completion of the Work will be verified by the City of Owosso and/or Professional prior to payment of the invoice.
- f) Application for final payment shall be submitted pursuant to this Section (Section 01025).

1.4 Eliminated Or Added Items

- a) If any significant item, Work, equipment or material is added, a change order shall be issued.
- b) The City of Owosso and/or Professional reserve the right to eliminate items that have not been initiated with no payment due to the Contractor for such eliminated items.

1.5 Incidental Work

- a) Incidental work items for which separate payment is not measured include, but are not limited to, the following items:
- 1) Preparation and approval of required plans/permits, including payment of any fees.
 - 2) General Site cleanup.
 - 3) Project signage including roadway detour(s).
 - 4) All temporary fencing and barriers.
 - 5) Health and Safety requirements.
 - 6) Field supervision and layout.
 - 7) Snow removal and/or winter conditions, if applicable.
 - 8) Job-Site administration.
 - 9) Invoicing/billing.
 - 10) Site security.
 - 11) Construction office/trailer (if supplied/used).
 - 12) Construction facilities and temporary controls.
 - 13) Decontamination and disposal of materials used to perform decontamination.
 - 14) Restoration of disturbed areas not designated or described in the Contract.
 - 15) Restoration of areas used for material and equipment storage, and Contractor access.
 - 16) Cooperation with local code enforcement officers, fire marshal, other Contractors, State, Professional, and others.
 - 17) Utility crossings, support, protection/shielding, relocations, bypass, and disconnecting/removing/relocating/replacing not specifically identified in the Contract Documents.
 - 18) Locating site utilities that would be disturbed by the Work.
 - 19) All activities required to conform to MDOT, Shiawassee County Road Commission, City of Owosso, and Shiawassee County standards and regulations and permit requirements that are not designated or described in the Contract.
 - 20) Project record documents.
 - 21) Environmental protection.
 - 22) Work area and perimeter air monitoring.

- 23) Odor monitoring and control.
- 24) Dust monitoring and control.
- 25) Vapor control.
- 26) Construction aids.
- 27) Storage of equipment.
- 28) Safety, first aid and fire protection equipment.
- 29) General waste collection and disposal.
- 30) Sedimentation and erosion control.
- 31) Storm/surface water control.
- 32) Quality Assurance/Quality Control
- 33) Quantification, including certified volumes (liquid), number of tons (solids), manifesting, tracking, and documentation of waste disposal activities.
- 34) Quantification, including certified weights, tracking and documentation of backfill activities.
- 35) Waste characterization sampling and analysis, waste profile preparation and disposal approval.
- 36) Maintaining safe access (ingress/egress) to the site and adjacent thoroughfares.

1.6 Base Bid Pay Items

a) Item 1a - Pre-Construction Submittals

- 1) Payment: Payment for Line Item 1a shall be paid at the Contract Lump Sum Price.
- 2) Measurement: Payment for Line Item 1a shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for all labor, equipment, materials, supplies and incidentals necessary for the preparation of Submittals as required by the Contract Documents, including revisions and as required by the Professional reviews, and final approval of submittals required prior to beginning work: 1) Bonds and Insurance; 2) Schedule of Values;
- 3) Work Plan;
- 4) Site-Specific Health and Safety Plan (HASP);
- 5) Project Schedule;
- 6) Pre-Construction Project Meetings;
- 7) Project Coordination. This item also includes all other work and expenses incidental thereto, for which payment is not provided under other items.

b) Item 1b - Mobilization, Demobilization, Weekly Progress Meetings, Project Administration, Site Services

- 1) Payment: Payment for Line Item 1 b shall be paid at the Contract Lump Sum Price.
- 2) Measurement: Payment for Line Item 1 b shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for all labor, equipment, materials, supplies and incidentals necessary to complete the following: mobilization of all the required material, supplies, personnel and equipment necessary to complete the project; "Construction Facilities and Temporary Controls" (Section 01500) including, but not limited to temporary facilities, temporary fencing, surface water controls, decontamination and any associated analytical testing, dust control and air monitoring, soil erosion controls, material storage area; site health and safety meetings, progress meetings, inspection meetings. This item also includes demobilization of all the required material, supplies, personnel and equipment necessary to complete the project, removal of temporary facilities, removal of temporary fencing, disconnection of temporary utility connections; final site cleanup/restoration, etc. associated with demobilization. Line Item 1b also includes general administration of the Work and requirements specified in Division 01 of these Specifications, which include, but are not limited to payment processing; progress meetings; project management and coordination. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

c) Item 1c- Project Closeout

- 1) Payment: Payment for Line Item 1c shall be paid at the Contract Lump Sum Price.
- 2) Measurement: Payment for Line Item 1c shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for all labor, equipment, materials, supplies and incidentals necessary to complete the "Contract Closeout" (Section 01700). Line Item 1c includes submission of Project Record Documents identified in "Submittals" (Section 01300) and not included in Line Item 1a or Line Item 1b, including but not limited to documents identifying utilities relocated and restored, the linear footage and depths of shoring installed/removed, liquid/sludge disposal manifests, Quality Control documentation, surveys and Shop Drawings, warranties, daily progress summaries, waivers of lien, consent of surety, etc. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

d) Item 2a - Utility Relocation/Replacement, Temporary Protection/Support/Re-Routing

- 1) Payment: Payment for Line Item 2a shall be paid on a time and materials basis using the Owner's Provisionary Allowance.
- 2) Measurement: Payment for Line Item 2a shall be based on work actually completed as determined by the percentage of Work received and approved, following submittal of associated itemized costs for activities necessary to conduct utility protection, relocation, and replacement activities as described in "Submittals" Section 01300) and "Existing Utilities and

Underground Structures" (Section 02150) and approval by the Professional. This item shall be full compensation for all labor, equipment, materials, supplies and incidentals necessary to complete utility protection, relocation, and replacement as described in "Existing Utilities and Underground Structures" (Section 02150), as necessary to install excavation shoring to the extents identified in the Figure 3A - Proposed Excavation Area in Appendix B of the Bid Documents. Copies of utility owner and local government final inspection/approval documentation shall be provided for payment of portions of Line Item 2b. This also item includes all other work and expenses incidental thereto for which payment is not provided under other items.

e) Item 3a - Installation/Removal of Excavation Shoring

- 1) Payment: Payment for Line Item 3a shall be paid at the Contract Lump Sum Price.
- 2) Measurement: Payment for Line Item 3a shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for all labor, equipment, materials, supplies and incidentals necessary to complete the design, installation, removal, and use of excavation shoring to complete the planned soil excavation activities (10' excavation depth), as identified in the Figure 3 - Proposed Excavation Area in Appendix B of the Bid Documents, in accordance with a project work plan prepared by the Contractor as described in "Submittals" (Section 01300). Shoring installation logs and Shoring Removal Logs (documenting that installation and removal requirements have been met) shall be used as documentation for payment of portions of Line Item 3a. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

f) Item 3b- Characterization, Removal, Storage, Transport, Disposal of Hazardous Impacted Solids (<UTS)

- 1) Payment: Payment for Line Item 3b shall be paid for at the Contract Unit Price per ton.
- 2) Measurement: Payment for Line Item 3b shall be based on the number of tons of listed hazardous impacted solids, concentrations in which do not exceed the universal treatment standard (UTS) under 40 CFR 268.48, as documented on signed disposal facility manifests. Payment shall be determined by disposal documents provided by the disposal facility, signed by the disposal/recycling facility. This item shall be full compensation for furnishing all labor, equipment, tools, materials and incidentals to characterize, temporarily store/stock-pile, load, transport and dispose of all impacted, construction-derived solid waste (e.g., soils, contaminated equipment, decontamination sediment, contaminated decontamination pad materials, etc.) at an appropriate, permitted Waste Disposal facility, as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Existing Utilities and Underground Structures" (Section 02150), "Removal and Disposal of Contaminated Solids" (Section 02610), that is necessary to conduct the proposed shoring installation identified in the Figure 3A - Proposed Excavation Area in Appendix B of the Bid Documents, and decontamination of excavation shoring materials following removal. This item includes the cost of roll-off boxes, drums, and all disposal costs at the disposal facility. The Contract Unit Price will reflect the Unit Price submitted by the Contractor on their Bid Schedule and identified in the Contract Documents for this item. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

g) Item 3c- Characterization, Removal, Storage, Transport, Disposal of Hazardous Impacted Solids (>UTS)

- 3) Payment: Payment for Line Item 3c shall be paid for at the Contract Unit Price per ton.
- 4) Measurement: Payment for Line Item 3c shall be based on the number of tons of listed hazardous impacted soils, concentrations in which exceed the universal treatment standard under 40 CFR 268.48, as documented on signed disposal facility manifests. Payment shall be determined by disposal documents provided by the disposal facility, signed by the disposal/recycling facility. This item shall be full compensation for furnishing all labor, equipment, tools, materials and incidentals to characterize, temporarily store/stock-pile, load, transport and dispose of all impacted, construction-derived solid waste (e.g., soils, contaminated equipment, decontamination sediment, contaminated decontamination pad materials, etc.) at an appropriate, permitted Waste Disposal facility, as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Existing Utilities and Underground Structures" (Section 02150), "Removal and Disposal of Contaminated Solids" (Section 02610), that is necessary to conduct the proposed shoring installation identified in the Figure 3A - Proposed Excavation Area in Appendix B of the Bid Documents, and decontamination of excavation shoring materials following removal. This item includes the cost of roll-off boxes, drums, and all disposal costs at the disposal facility. The Contract Unit Price will reflect the Unit Price submitted by the Contractor on their Bid Schedule and identified in the Contract Documents for this item. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

h) Item 3d- Characterization, Removal, Storage, Transport, Disposal of Non-Hazardous Impacted Solids

- 5) Payment: Payment for Line Item 3d shall be paid for at the Contract Unit Price per ton.
- 6) Measurement: Payment for Line Item 3d shall be based on the number of tons of non-hazardous impacted solids on signed disposal facility manifests. Payment shall be determined by disposal documents provided by the disposal facility, signed by the disposal/recycling facility. This item shall be full compensation for furnishing all labor, equipment, tools, materials and incidentals to characterize, temporarily store/stock-pile, load, transport and dispose of all impacted, non-hazardous, construction-derived solid waste (e.g., soils, concrete, etc.) at an appropriate, permitted Waste Disposal facility, as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Existing Utilities and Underground Structures" (Section 02150), "Removal and Disposal of Contaminated Solids" (Section 02610), that is necessary to conduct the proposed shoring installation identified in the Figure 3A - Proposed Excavation Area in Appendix B of the Bid Documents, and decontamination of excavation shoring materials following removal. This item includes the cost of roll-off boxes, drums,

and all disposal costs at the disposal facility. The Contract Unit Price will reflect the Unit Price submitted by the Contractor on their Bid Schedule and identified in the Contract Documents for this item. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

- i) Item 3e - Characterization, Storage of Hazardous Liquids, Sludges
 - 1) Payment: Payment for Line Item 3e shall be paid at the Contract Lump Sum Price.
 - 2) Measurement: Payment for Line Item 3e shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for furnishing all labor, equipment, tools, and other materials required to characterize, remove and store all construction-derived liquid waste (e.g., liquids and sludges generated during equipment and shoring materials decontamination, etc.) as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Removal and Disposal of Liquids, Sludges" (Section 02710), and as referenced in the Contract. This item includes all decontamination equipment installation/removal, and decontamination liquid/sludge collection and storage. This item includes all analytical costs outside of State lab costs as described in Testing Laboratory Services (Section 01435). This item includes all other work and expenses incidental thereto for which payment is not provided under other items.

- j) Item 3f - Loading, Transport, Off-Loading of Hazardous Liquids, Sludges (1 to 5,000 gallons per event)
 - 1) Payment: Payment for Line Item 3f shall be paid at the Contract Unit Price per event.
 - 2) Measurement: Payment for Line Item 3f shall be based on the number of listed hazardous liquids, sludges loading/transporting/off-loading events conducted, and as itemized in the approved "Schedule of Values". A single loading/transporting/off-loading event constitutes the combination of loading, transporting and off-loading of up to a maximum of 5,000 gallons of listed hazardous liquids, sludges. This item shall be full compensation for furnishing all labor, equipment, tools, materials and incidentals to complete the loading, transport and off-loading of all listed hazardous liquids and sludges (e.g., liquids and sludges generated during equipment and shoring materials, etc.) at an appropriate, permitted Waste Disposal facility, as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Removal and Disposal of Liquids, Sludges" (Section 02710), and as referenced in the Contract. The Contract Unit Price will reflect the Unit Price submitted by the Contractor on their Bid Schedule and identified in the Contract Documents for this item. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

- i) Item 3g - Disposal of Listed Hazardous Dewatering Liquids, Sludges (1 to 10,000 gallons)
 - 1) Payment: Payment for Line Item 3g shall be paid at the Contract Unit Price per gallon.
 - 2) Measurement: Payment for Line Item 3g shall be based on the gallons (from 1 to 10,000 gallons) of listed hazardous liquids, sludges disposed as measured on Site prior to transport. Payment shall be determined by disposal manifests for each load that indicate the gallons of material disposed and other disposal documents provided by the disposal facility, signed by the disposal facility. This item shall be full compensation for furnishing all labor, equipment, tools, materials and incidentals to complete the disposal of all construction-derived liquid waste (e.g., liquids and sludges generated during equipment and shoring materials, etc.) as specified in "Construction Facilities and Temporary Controls" (Section 01500), "Removal and Disposal of Liquids, Sludges" (Section 02710), and as referenced in the Contract. The Contract Unit Price will reflect the Unit Price submitted by the Contractor on their Bid Schedule and identified in the Contract Documents for this item. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

- m) Item 3h - Site Restoration
 - 1) Payment: Payment for Line Item 3h shall be paid at the Contract Lump Sum Price.
 - 2) Measurement: Payment for Line Item 3h shall be based on work actually completed as determined by the percentage of Work received and approved, and as itemized in the approved "Schedule of Values". This item shall be full compensation for furnishing all labor, equipment, tools, and other materials required for restoring ground surface areas specified in "Existing Utilities and Underground Structures" (Section 02150), and disturbed as a result of the proposed shoring installation, including utility shielding, relocation, and restoration, as referenced in this Contract. This item also includes all other work and expenses incidental thereto for which payment is not provided under other items.

END OF SECTION 01025

SECTION 01040 COORDINATION

1. Project Coordination:

1.1 General

- (a) Before beginning Work the Contractor must coordinate with the City of Owosso, Professional, and State Project Director to implement the schedule for the Project.
- (b) Within 5 days of the notice to Proceed, the Contractor shall meet the City of Owosso, Professional, and State Project Director onsite for a Pre-construction Meeting ("Project Meetings," Section 01200) to discuss the contractor's approach to completing the Project and arrange the initial schedule for the Project.

- (c) The Project Schedule is to be agreed upon between and formally verified by Contractor, City of Owosso, Professional, and State Project Director, before Work begins on the site.
- (d) Do Not Start Field Activities until authorized by the City of Owosso and Professional. Once the Project is started, it must be carried to completion without delay.
- (e) Obtain necessary permits to complete the field activities.
- (f) Coordinate for access and notifications related to work in adjoining road right of ways and alleyways, including securing approvals for signage, notices of scheduled work activities, and detour routes.
- (g) Make arrangements for temporary storage of materials and supplied for timely delivery to the site.
- (h) Refer all Press Contacts to the City of Owosso, Professional, and State Project Director.
- (i) Maintain up to date progress records
- (j) Maintain the project site in a neat condition
- (k) The Contactor should coordinate the work of Subcontractors, equipment, materials, and suppliers.

1.2 Utilities

- (a) The Contractor is required to verify the presence and location of any and all utilities that may exist within the limits of the Work for this project, including areas where utilities may be temporarily relocated to facilitate installation of excavation shoring
- (b) Any building utility service interruptions or outages including security required by the Contractor in performing the Work must be prearranged with City of Owosso, Professional, and State Project Director and must occur only during those scheduled times.

1.3 Administrative Personnel

- (a) The Contractor shall provide full time, onsite General Superintendent to administer the Work and shall appoint other administrative and supervisory personnel required for the performance of the Work, as necessary.
- (b) The onsite General Superintendent shall be an employee of the Contractor with authorization to make decisions on behalf of the Contractor while in the field.

1.4 Work on the Property

- (a) Excavation shoring activities are to occur at or within the property limits for the site. Prior to excavation shoring installation, the Contractor will coordinate with the Professional for property Owner notification, permission, and requirements.

2. Cutting and Patching:

- (a) The Contractor must do all cutting, fitting or patching of the Work that may be required to make its several parts fit together properly or make new Work join with the existing structure. The Contractor must take proper precautions so as not to endanger any existing Work. The Contractor must not cut or alter existing structural members or foundations unless specifically required by the Contract Documents.
- (b) Holes or openings cut in exterior walls and roofs for installation of materials or equipment must be waterproofed by appropriate, approved materials and methods.
- (c) All adjacent finished surfaces that are damaged by the new Work must be patched with materials matching existing surfaces. Joints between patched and existing material must be straight, smooth and flush. Workers skilled in its installation must apply all patching material.

END OF SECTION 01040

SECTION 01050 FIELD ENGINEERING

1. General

- 1.1** The Contractor must employ a surveyor who must establish and maintain all lines and levels required for laying out and constructing the Work.
- 1.2** The Contractor agrees to assume all responsibility due to inaccuracy of any Work of the surveyor, and including incorrect bench marks, their loss or disturbance.
- 1.3** Prior to initiating any excavation shoring installation activities, including utility relocation and restoration activities, the Contractor must submit two copies of site layout Drawings (Pre-Construction Survey) prepared for the Project and certified by the Surveyor. The Pre-Construction Survey Drawings must include information in sufficient detail to identify pre-existing grades and location of structures and sub-grade and above-ground utilities, and pavement that are to be affected by the Work, and to identify the pre-existing grades and locations of structures and pavement, in onsite and offsite locations, that are to be affected by the Work and to

identify the pre-existing grades and locations of structures and sub-grade and above-ground utilities that are not to be affected by the Work.

- 1.4 Following completion of the shoring installation activities the contractor must submit two copies of site layout Drawings (Post- Shoring Installation Survey) prepared for the Project and certified by the surveyor. The Post-Shoring Installation Survey Drawings must include in sufficient details to identify the lateral limits of the excavation shoring installed, any utilities encountered/shielded/relocated/repaired/replaced, and any anomalies encountered during the excavation shoring installation activities. The Contractor must verify with the Professional that all of the required post-shoring installation survey information was collected.
- 1.5 Following completion of the site restoration activities, the contractor must submit two copies of site layout Drawings (Post-Shoring Removal Survey) prepared for the Project and certified by the surveyor. The Post-Shoring Removal Survey Drawings must include information in sufficient detail to verify that the post restoration grades and location of structures met the pre-existing conditions.
- 1.6 Refer to survey requirements in "Submittals" (Section 01300) for additional Information.

2. Execution

- 2.1 Contractor shall conduct a Site survey to identify all Site features and pre-construction conditions within the Work Zone, including locations and elevations of roadways, driveways, utilities, ground surface, building location and elevation, sidewalks, etc.
- 2.2 Contractor shall conduct a Site survey to identify all Site features and post-Site restoration conditions within the Work Zone, including locations and elevations of roadways, pavement, property lines, foundation underpinning, utilities, ditches/swales, ground surface, etc.
- 2.3 Ground surface elevations shall be conducted to a maximum lateral grid interval of 20-feet. All elevation data shall be referenced to feel mean seal level (MSL) and supplied to the nearest 0.1 feet with the exception of utility elevation data, which must be supplied to the nearest 0.01 feet.
- 2.4 A Registered/Licensed Land Surveyor is required to conduct the Site Survey activities.

Note: the surveyor will not be allowed to enter the Work Zone during any construction activities that would result in exposure to contaminants without certification of HAZWOPER training per the requirements established in "submittals" (Section 01300). The Contractor may utilize their HAZWOPER-trained personnel to assist the Surveyor, as needed.

END OF SECTION 01050

SECTION 01060 REGULATORY REQUIREMENTS

1. **Laws:** The Contractor and its Subcontractors/Suppliers must comply with all Federal, State and local Laws applicable to the Work and site.
2. **Codes:** All Works must be provided in accordance with the State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq., International Building and Residential Codes and all applicable Michigan construction codes and fire safety including but not limited to: Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Rehabilitation Code for Existing Buildings, Michigan Mechanical Code, Michigan Elevator Code and Michigan Plumbing Code. If the Contractor observes that any Contract Document conflicts with any Laws or the State Construction Code or any permits in any respect, the Contractor must promptly notify the Professional in writing. If the Contractor provides any Work knowing or having to reason to know of such conflict, the Contractor must be responsible for that performance.
3. **Permits:** All required construction permits must be secured and their fees including inspection costs must be paid by the Contractor. The time incurred by the Contractor in obtaining construction permits must constitute time required to complete the Work and does not justify any increases to the Contract Time or Price, except when revisions to the Drawings and/or Specifications required by the permitting authority cause the Delays. The Contractor must pay all charges of Public Utilities for connections to the Work. The following permit fees will be paid by the City of Owosso: **None**.
4. **Taxes:** The Contractor must pay all Michigan sales and use taxes and any other similar taxes covering the Work that are currently imposed by legislative enactment and as administered by the Michigan Department of Treasury, Revenue Division. If the Contractor is not required to pay or bear the burden or obtains a refund of any taxes deemed to have been included in the Bid and Contract Price, the Contract Price must be reduced by a like amount and that amount, whether as a refund or otherwise, must ensure solely to the benefit of City of Owosso.

5. **Safety and Protection:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local Laws governing the safety and protection of persons or property, including, but not limited to the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, as amended, MCL 408.1001 et seq. and all rules promulgated under the Act. The Contractor is responsible for all damages, injury or loss to the Work, materials, equipment, fines, penalties as a result of any violation of such Laws, except when it's due to the fault of the Drawings or Specifications or to the Act, error or omission of the City of Owosso or Professional. The Contractor is solely responsible for initiating, maintaining and supervising all safety precautions and programs and such responsibility must continue until such time as the Professional is satisfied that the Work, or Work inspected, is completed and ready for final payment. In doing the Work and/or in the event of using explosives, the Contractor must take all necessary precautions for the safety of, and must erect and maintain all necessary safeguards and provide the necessary protection to prevent damage, injury or loss to: (a) all employees on the Work and other persons who may be affected by the Work, (b) all the Work and materials and equipment to be incorporated into the Work, whether stored on or off the site, and (c) other property at or adjacent to the site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Utilities not designated for removal, relocation or replacement. In the event of severe weather, the Contractor must inspect the Work and the site and take all reasonably necessary actions and precautions to protect the Work and ensure that public access and safety are maintained.

6. **Fire Hazard Conditions:**
 - (a). The fire hazard classification of finish materials where used in the specification must be in accordance with the current Michigan Building Code.

 - (b) Classification must be determined by tunnel test in accordance with National Fire Protection Association (NFPA-255), American Society for Testing Materials (ASTM E-84) or Underwriters' Laboratories, Inc. (UL-723).

7. **Flame/Smoke Resistance Standards:** The Contractor must provide carpeting complying with "Class B" requirements as set forth in Michigan Department of State Police State Fire Safety Board "Health Care Facilities Fire Safety Rules' R29.1243, Rule 243, when tested in accordance with the following procedures:
 - (a) Tunnel Test: Test for surface burning characteristics, with ratings for flame spread, fuel contribution, and/or smoke density; ASTM E 84, UL 723, or NFPA No. 255.
 - (b) Pill Test: Test for flammability; ASTM D 2859, or DOC FF-1-70.
 - (c) Floor Radiant Panel Test: Test for burning under varying radiant energy levels; ASTM E 648, with minimum average radiant flux ratings not less than 0.45 watts/sq. cm.
 - (d) Smoke Density Test: Test in radiant heat chamber, with and without flame, for density of smoke generated; ASTM E 662, or NFPA No. 258, also known as NBS Smoke Density Chamber Test.

8. **Michigan Right-To-Know Law:** The Contractor and its Subcontractors/Suppliers must comply with MIOSHA, Michigan Right-to-Know Law (Public Act 80 of 1986) and the rules promulgated under it. The Act places certain requirements on employers to develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers and development and availability of Material Safety Data Sheets (MSDS), and to provide training for employees who work with these chemicals and develop a written hazard communications program. The Act also provides for specific employee rights, including the right to be notified of the location of MSDS and to be notified at the site of new or revised MSDS within five Business Days after receipt and to request MSDS copies from their employers. The Contractor, employer or Subcontractor must post and update these notices at the site.

9. **Environmental Requirements:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local environmental Laws, standards, orders or requirements including but not limited to the National Environmental Policy Act of 1969, as amended, Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended, the Clean Air Act, as amended, the Clean Water Act, as amended, the Safe Drinking Water Act, as amended, Pollution Prevention Act, as amended, Resource Conservation and Recovery Act, as amended, National Historic Preservation Act, as amended and Energy Policy and Conservation Act and Energy Standards for Buildings Except Low-Rise Residential Buildings, ANSI/ASHRAE/IESNA Standard 90.1-1999.

10. **Nondiscrimination:** For all Contracts for goods or services in amount of \$5,000 or more, or for Contracts entered into with parties employing three or more employees; in connection with the performance of Work under this Contract, the Contractor and its Subcontractors and Suppliers must comply with the following requirements:
 - 10.1 Not to discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex, height, weight or marital status and take affirmative action to ensure that applicants are employed and the employees are not subject to such discrimination. Such action must include, but is not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

 - 10.2 To state in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight or marital status.

- 10.3 To send, or have its collective bargaining representative send, each labor union or representative of workers with which there is a collective bargaining agreement or other contract or understanding, a notice advising the labor unions or workers' representative of the commitments under this provision.
- 10.4 To comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq.; the Michigan Persons With Disability Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et Seq.; and all published rules, regulations, directives, and orders of the Michigan Civil Rights Commission (MCRC) which may be in effect on or before the date of Bid opening.
- 10.5 The Contractor must furnish and file compliance reports within the times, and using the forms prescribed by the MCRC. Compliance report forms may also elicit information as to the practices, policies, programs, and employment statistics of the Contractor and Subcontractors. The Contractor must permit access to Records by the MCRC and its agent for purposes of ascertaining compliance with the Contract and with rules, regulations, and orders of the MCRC.
- 10.6 If, after a hearing held under its rules, the MCRC finds that the Contractor has not complied with the nondiscrimination requirements of the Contract Documents, MCRC may, as part of its order, certify its findings to the Administrative Board of City of Owosso, which may order the cancellation of the Contract and/or declare the Contractor ineligible for future contracts with the City of Owosso until the Contractor complies with the MCRC's order.

END OF SECTION 01060

SECTION 01090 REFERENCES

1. General

- 1.1 References will be made in an abbreviated alpha numeric form to specific standard specifications, reference publications and building codes of federal or state agencies, manufacturers, associations or trade organizations. Such references will be identified by the alphabetic abbreviation which identifies the government agency, the association or organization followed by the rule, section or detail number that are to form a part of these specifications, the same as if fully set forth herein, and must be of latest issued date in effect three months before the Bid opening date shown on the Proposal and Contract. The abbreviations used are referred to as follows:

<u>Abbreviation</u>	<u>Agency, Association or Organization</u>
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society of Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BOCA	Building Officials and Code
CDA	Copper Development Assn., Inc.
CLFMI	Chain Link Fence Manufacturer's Institute
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
F/M	Factory Mutual Research Corporation
FS	Federal Specifications
HEW	United States Department of Health Education and Welfare
MDOT	Michigan Department of Transportation
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation Testing Laboratory, Inc.
NSWMA	National Solid Waste Management Association
PCA	Portland Cement Association
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal & Air Conditioning Contractors
UL	Underwriters Laboratories, Inc.
USBM	United States Bureau of Mines
USDC	United States Department of Commerce

1.2 The following references are made part of this specification to the extent referenced:

(a) Federal Laws

- 1) PL 94-850/98-616 – Resource Conservation and Recovery Act (RCRA) of 1976 as amended 1984
- 2) PL 91-596 – Occupational Safety and Health Act (OSHA) of 1970

(b) Code of Federal Regulations

- 1) 29 CFR 19190.120 - Hazardous Waste Operations and Emergency Response
- 2) 40 CFR 260 - Hazardous Waste Management Systems, Genera
- 3) 40 CFR261 - Identification and Listing of Hazardous Wastes
- 4) 40 CFR262 - Standards applicable to Generators of Hazardous Wastes
- 5) 40 CFR 263 - Standards Applicable to Transporters of Hazardous Waste
- 6) 40 CFR 264 - Standards for Hazardous Wastes TSDF Owner and Operators
- 7) 40 CFR 265 - Interim Standards for Hazardous Wastes TSDF Owner and Operators
- 8) 40 CFR 270 - Hazardous Waste Permits Program
- 9) 40 CFR 172 - Hazardous Materials
- 10) 40 CFR 173 - General Shipment Requirements
- 11) 40 CFR 174-177 - Transporter Requirements
- 12) 40 CFR 178-179 - Container Specifications

(c) State of Michigan Laws

- 1) Part 111 of P.A. 451 – Hazardous Waste Management (Formerly P.A. 64)
- 2) Part 115 of P.A. 451 – Solid Waste Management (Formerly P.A. 641)
- 3) Part 121 of P.A. 451 – Liquid Industrial Waste
- 4) P.A. 154 – Michigan Occupational Safety and Health Act (MIOSHA)
- 5) Part 201 of P.A. 451 –Environmental Remediation (Formerly P.A. 307)
- 6) Part 211 of P.A. 451 – Underground Storage Tanks
- 7) Part 213 of P.A. 451 – Leaking Underground Storage Tanks

(d) Industry Standards

- 1) ASTM A328 – Steel Sheet Piles
- 2) ASTM A 36 – Structural Steel
- 3) AISC – Manual of Steel Construction

END OF SECTION 01090

SECTION 01100 PROJECT PROCEDURES

1. **Signage and Safety:** The Contractor must post appropriate construction signs to advise the occupants and visitors of occupied facilities of the limits of construction work areas, hardhat areas, excavations, construction parking and staging areas, etc. Advertising signage by contractors, subcontractors, or suppliers is not allowed. The Contractor must maintain safe and adequate pedestrian and vehicular access to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire and police stations and like establishments. The Contractor must obtain written approval from the City of Owosso ten Calendar Days before connecting to existing facilities or interrupting the services on site.
2. **Barrier and Enclosures:**
 - (a) The Contractor must furnish, install and maintain as long as necessary and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the Work for protection of property, workers and the public. The Contractor must hold City of Owosso harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the Work under the Contract.
 - (b) **Temporary Fence:** The Contractor must entirely enclose the Contract area by means of woven wire having minimum height of six feet. Gates must be provided at all points of access. Gates must be closed and secured in place at all times when Work under the Contract is not in progress. The fence must be removed and grounds restored to original condition upon completion of the Work.
 - (c). **Street Barricades:** The Contractor must erect and maintain all street barricades, signal lights and lane change markers during the periods that a traffic lane is closed for their operations. There must be full compliance with rules and ordinances respecting such street barricading and devices must be removed when hazard is no longer present.

3. Construction Aids:

- (a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required, safe and adequate scaffolding, ladders, staging, platforms, chutes, railings, hoisting equipment, etc., as required for proper execution of the Work. All construction aids must conform to Federal, State, and local codes or Laws for protection of workers and the public.

END OF SECTION 01100

SECTION 01200 PROJECT MEETINGS

1. **Pre-Construction Conferences:** The Project Director will schedule a pre-construction conference to be attended by the City of Owosso, Professional, and State Project Director, and the Contractors. A project procedure will be established for the Work during the pre-construction meeting. When no organizational meeting is called, the Contractor, before beginning any Work, must meet with City of Owosso, Professional, and State Project Director and arrange a Work schedule for the Project. Once the Project has been started, the Contractor must carry it to completion without delay.
2. **Progress Meetings:** The Professional will schedule progress meetings to be held on the job site whenever needed to supply information necessary to prevent job interruptions, to observe the Work or to inspect completed Work. The Contractor must be represented at each progress meeting by persons with full authority to act for the Contractor in regard to all portions of the Work.
3. **Health and Safety Meetings:** The Contractor will schedule and administer a Site Health and Safety Meeting prior to the commencement of Work. All new personnel entering the Site must attend a Site Health and Safety Meeting prior to accessing the Site. The Contractor must schedule and administer a short Site Health and Safety Meeting at the beginning of each work day to review potential hazards specific to that day's activities, problems encountered during the previous day's activities, and solutions to those problems. The Contractor must make arrangements for the Site Health and Safety Meetings, preside over and administer the meetings, and record those in attendance and the topics discussed. The Contractor's site workers, subcontractors and Professional shall attend the meetings, as appropriate.

END OF SECTION 01200

SECTION 01300 SUBMITTALS

1 General

1.1 Purpose

- a) To verify that products and systems proposed by the Contractor for use on the project conform to the design intent, the Contractor shall forward to the Professional the project data, shop drawings, samples, certifications, schedules, manuals, and other submittals as required in the Specifications.

1.2 General Requirements

- a) Contractor must submit to the Professional 2 paper (hard) copies of each Submittal(s) and 1 electronic file(s) of each Shop Drawing(s) that are required by the Contract Documents. A legible fax and/or electronic submittal (email) may be accepted to initiate review, if followed by a hard copy. The As-Built Diagrams are required to be drawn in AUTOCAD Version 2000 (or newer), and provided in electronic format. Hand-drawn drawings will not be accepted.
- b) The Contractor shall not submit unapproved submittals. Each submittal must be stamped/certified to indicate that the Contractor has satisfied the requirement of the Contract Documents and all trade construction Submittals must be coordinated, reviewed and stamped/approved by the Contractor before submission to the Professional.
- c) Before each submission, the Contractor must (a) determine and verify all field measurements, quantities, dimensions, instructions for installation and handling of equipment and systems, installation requirements (including location, dimensions, access, fit, completeness, etc.), materials, color, catalog numbers and other similar data as to correctness and completeness, and (b) have reviewed and coordinated that technical Submittal with other technical submittals and the requirements of the Contract Documents.
- d) The Contractor must give the Professional specific written notice of any variation from the requirements of the Contract Documents.
- e) Neither the City of Owosso's and/or Professional's authority to review any of the Submittals by the Contractor, nor the City of Owosso's and/or Professional's decision to raise or not to raise any objections about the Submittals, creates or imposes any duty or responsibility on the City of Owosso or Professional to exercise any such authority or decision for the benefit of the Contractor/Subcontractor/Supplier, any surety to any of them or any other third party.
- f) The Contractor is not relieved of responsibility for errors or omissions in shop drawings, product data, samples, or similar submittals just because the City of Owosso and/or Professional approved them.

- g) The finalized As-Built/Record Documents and approved Submittals must be received prior to processing final payment to the Contractor. The approved Submittals are a part of the final As-Built/Record Documents required for processing final payment to the Contractor.
- h) The schedule shall allow for reasonable review cycles, and shall be consistent with the overall construction schedule.
- i) No claims for schedule delays will be allowed for unresponsive submittals or failure to respond to comments in a timely manner by Contractor.
- j) The Professional has the right to approve/disapprove the use of proposed transport company(ies) and disposal facility(ies) based on a review of the documentation submitted.

1.3 Preparation of Submittals By Contractor

- a) Review submittal items for legibility, conformance to the Contract Documents, coordination between work items, and completeness according to submittal requirements of each Specification section.
- b) A Cover Page shall accompany each submittal. The Cover Page shall include the following: "Former Eastside Cleaners Excavation Shoring Installation," Name of Submittal, Draft Number, and Contractor Name.
- c) If all the submittal items required for a specification section are not provided or deviate from the Contract Documents, attach a memo explaining when the missing items will be provided and/or justification for the deviation.

1.4 Review by City of Owosso / Professional

- a) Upon receipt, the Professional will log in submittals and review for general conformance with the requirements of the Contract Documents. A concurrent review with the City of Owosso and State Project Director may be necessary for some/all of the submittals. The Professional will be responsible for passing copies of the submittals on to the City of Owosso and State Project Director, as necessary.

1.5 Responsibilities Of Contractor

- a) The Professional and/or City of Owosso review activities do not relieve the Contractor from responsibility of compliance with the requirements of the Contract Documents. The Contractor remains responsible for dimensions, job site correlation, construction methods, and coordination and installation of work.
- b) The Contractor shall promptly distribute submittal review actions and comments to its subcontractors, as necessary, and otherwise as required for orderly progression of the work, and shall modify or replace products to comply with comments.
- c) If a submittal is acceptable, it will be marked "Approved", and Contractor may conduct work in accordance with the submitted plan, schedule, or form.
- d) Upon receipt of a submittal marked "Approved as Corrected", Contractor shall make the changes noted, and then may conduct work in accordance with the corrected plan, schedule, or form.
- e) Upon receipt of a submittal marked "Revise and Resubmit", Contractor shall make the corrections indicated and repeat the initial approval procedure. Work shall not proceed on the specified item until "Approved".
- f) The "Not Approved" notation is used to indicate a plan or schedule that is not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial approval procedure to resubmit the appropriately revised schedule or plan. Work shall not proceed on the specified item until "Approved".
- g) The "Acknowledgement of Receipt" notation is used to acknowledge receipt of a submittal that does not require the approval of the Professional.
- h) Any work performed without the "Approved" or "Approved as Corrected" plans, schedules, and forms will be at the sole responsibility of the Contractor. Work conducted before receiving "Approved" or "Approved as Corrected" notations shall be modified or replaced at the Contractor's expense, to conform to the design intent, as directed by the Professional and/or State.
- i) All Pre-Work Submittals (as defined in Section 01300) shall be supplied to the Professional well in advance of the need to begin the site work. All Project Record Document Submittals (as defined in Section 01300) shall be supplied to the professional in the time frames listed in that Section, with all pre-Work Project Record Documents (i.e., Pre-Construction Survey, equipment rental notifications, etc.) being submitted and approved prior to initiating that Work item.
- j) The Contractor shall be responsible for reviewing submittals made by their subcontractors before transmitting them to the Professional to: 1) assure proper coordination of the work; 2) determine that each submittal is in accordance with the Contractor's requirements; 3) confirm that there is sufficient information for the Professional to determine compliance with the Contract Documents. Incomplete or inadequate submittals will be returned for revision without review.
- k) The Professional will review and process all submittals promptly, but a reasonable time should be allowed for this, for the submittals being revised and resubmitted, and for time required to return the approved submittals to the Contractor.
 - 1) The Contractor is responsible for any time Delay and any cost incurred by the Professional, Contractor or Subcontractors/Suppliers as a result of resubmissions and re-reviews of a particular Submittal.
- l) The Contractor shall revise and correct submittals returned for revision and re-submittal until approval by the Professional is achieved.

1.6 Documentation

- a) Contractor shall furnish required submittals with complete information and accuracy in order to achieve required approval of an item.

- b) Documentation provided in submittals shall be in adequate detail regarding dimensions, terminal depths, capacities, materials, connections, and interface to confirm whether the work represented complies with the Contract Documents.
- c) Documentation shall be organized to facilitate review and use. Reports and manuals shall have a table of contents in suitable detail for locating required topics and attachments.
- d) Documentation shall be in proper form and format. For example, signed Certificates of Compliance shall be provided under the Contractors/Subcontractors letterhead with the information requested.
- e) Documentation containing the number of tons (sediments and solids) or volume (liquids) of material disposed must be supplied for every load.

1.7 List Of Submittals

- a) The City of Owosso and Professional reserve the right to change the List of Submittals, requesting more/less pertinent information concerning the Project.
- b) Pre-Work Submittals: Within 5 business days following the Pre-Construction Meeting, the Contractor must submit the following "Administrative Submittals" to the Professional:
 - 1) Schedule of Values
 - 2) Project Schedule
 - 3) Work Plan
 - 4) Health and Safety Plan (HASP)
- a) Project Record Documents: The Contractor must submit the following "Project Record Documents" to the Professional within the listed time frames (see Contract Close-Out (Section 01700) for additional information):
 - 1) Pre-Construction Survey (minimum 2 business day prior to initiating excavation shoring installation Work).
 - 2) Post- Shoring Installation Survey (within 10 business days of completion of excavation shoring installation)
 - 3) Post-Shoring Removal Survey (within 10 business days of completion and acceptance of Site restoration activities).
 - 4) Existing Conditions Visual Documentation (minimum 2 business days prior to initiating shoring installation Work).
 - 5) Written notification to subcontractors and equipment rental companies of intended use of rental equipment and potential impact (with the Work Plan, and minimum 2 business days prior to mobilization of equipment to the Site after initial field activities).
 - 6) Road and ROW Permit(s).
 - 7) Excavation Shoring Installation Logs documenting the installation of excavation shoring in accordance with the Work Plan.
 - 8) Excavation Shoring Removal Logs documenting the removal of excavation shoring in accordance with the Work Plan.
 - 9) Waste characterization, waste profile, and disposal facility approval for disposal of all waste streams (with the Work Plan, and minimum 5 business days prior to a new waste stream leaving the Site after initial field activities).
 - 10) Written evidence that the hazardous/non-hazardous waste transporter and TSDF are approved for hazardous/nonhazardous waste transport, storage and disposal (with the Work Plan, and minimum 5 business days prior to a new waste stream leaving the Site after initial field activities or a new disposal facility is chosen after initial field activities).
 - 11) Personnel Training/Licensing Documentation (with the Work Plan, and prior to new personnel entering the Site after the start of initial field activities).
 - 12) Waste Transport Vehicle Insurance Certificates (with the Work Plan, and prior to new vehicles entering the Site after initial field activities).
 - 13) Certified copies of the transport and disposal receipts signed by the transporter and disposal facility for all hazardous and non-hazardous waste leaving the Site (within 5 business days of the waste leaving the Site).
 - 14) Waste Manifest Logs (within 5 business days of the waste leaving the Site).
 - 15) Notification of Substantially Completed Work (within 5 business days of substantial completion of Work).
 - 16) Punch List (within 5 business days of the Pre-Final Inspection Meeting(s)).
 - 17) Notification of Completion of Work (within 5 business days of completion of Punch List items)
 - 18) Daily Progress Summaries (compiled on a weekly basis, submit within 5 business days of the completion of each week of field activities).
 - 19) Daily Air Monitoring Reports (compiled on a weekly basis, submit within 5 business days of the completion of each week of field activities).
 - 20) Daily Site Safety Summaries (compiled on a weekly basis, submit within 5 business days of the completion of each week of field activities).
 - 21) Payment Request Forms (monthly and/or at Project Closeout).
 - 22) Certificate of Substantial Completion Guarantee and Indebtedness Statement (within 5 business days of the Pre-Final Inspection Meeting).
 - 23) Waivers of Lien from Subcontractors and Suppliers (prior to final invoicing).
 - 24) Consent of Surety (prior to final invoicing).

2. Execution

1.1 SCHEDULE OF VALUES

- a) Provide the Professional with a Schedule of Values, which shall be prepared as outlined in "Schedule of Values" (Section 01026).

1.2 Project Schedule

- a) The Contractor must provide the Professional and City of Owosso with a Project Schedule that conforms to the requirements below, unless otherwise approved by the Professional.
- b) The Project Schedule shall contain the following:
 - 1) Provide start and finish dates for each element of Work, including submittals, Work activities and project closeout.
 - 2) Identify critical path items of Work (i.e., permits, utility relocations, etc.).
 - 3) Identify the priority and sequencing by which the Contractor intends to execute the Work (or Work remaining) to comply with Contract Times, those sequences of Work indicated in or required by the Contract Documents.
 - 4) How the Contractor anticipates foreseeable events, site conditions and all other general, local and prevailing conditions that may in any manner affect cost, progress, schedule, performance and furnishing of the Work.
 - 5) How the Means and Methods chosen by the Contractor translate into activities and sequencing.
 - 6) The actual timing and sequencing of completed Work.
- c) The Project Schedule Format shall conform to the following:
 - 1) Type: Horizontal bar chart.
 - 2) Time Scale: Indicate the first date in each Work week.
- d) The procedures for updating schedules include the following:
 - 1) Submit updated Project Schedules at each Progress Meeting.
 - 2) Attach a letter of transmittal to each updated Project Schedule that includes a listing of items that have changed since the last submitted Project Schedule and include a discussion of problems causing delays, anticipated length of delays, and proposed corrective measures.
 - 3) If an updated Project Schedule remains unchanged since the last submitted Project Schedule, submit a written notice to that effect.
- e) The review of the Project Schedule by the Professional or the City of Owosso does not create or impose on the City of Owosso or the Professional any responsibility for the timing, planning, scheduling or execution of the Work or the correctness of any such Project Schedule detail.
- f) The Project Schedule shall be updated and submitted for Professional review a minimum of weekly after the initial Project Schedule submittal.
- g) Contractor must resolve the issues arising from the review by the Professional and/or the City of Owosso and submit Progress Schedule Revision.
- h) The correctness of Progress Schedule remains the sole responsibility of the Contractor.

1.3 Work Plan

- a) General Requirements
 - 1) The Contractor shall submit a detailed account of the Contractor's proposed approach to the specified Work.
 - 2) The Work Plan is the means by which the Contractor and Professional are assured that the Work will comply with the requirements of the Contract Documents.
 - 3) The Work Plan shall identify personnel, procedures, instructions, records and forms to be used for the accomplishment of the Work.
 - 4) The Work Plan shall have a logical order of Work items and identify projected time frames for each Work item.
 - 5) The Work Plan shall be adequate to cover all Work operations.
 - 6) The Work Plan shall identify the means, methods and procedures to provide for safe conduct of the Work.
 - 7) The procedures shall provide a detailed description of the methods and equipment to be used for each operation and sequence of operations.
 - 8) The Work Plan will designate an On-Site General Superintendent, who shall be responsible for overall management and administering the Work and have the authority to act for the Contractor.
 - (a) The On-Site General Superintendent for this Contract shall be an individual experienced in excavation shoring system installation activities, and whose responsibility is to ensure compliance with the Specifications.
 - (b) The On-Site General Superintendent shall be on-Site whenever Work is in progress.
 - (c) All on-Site Contractor staff shall be under the direction of the On-Site General Superintendent to perform all Work activities.
 - 9) The personnel performing the Work shall be fully qualified by experience and technical training to perform their assigned responsibilities and shall be hired directly by and work for the Contractor.
 - 10) Prior to any changes in personnel or responsibilities, submit in writing for approval by the Professional any necessary substitutions due to change in employment status and other unforeseen circumstances.
 - 11) Base the Work Plan on previous work experience and the guidance provided in the Specification Section.
 - 12) After acceptance of the Work Plan, notify the Professional in writing of any proposed changes. Proposed changes are subject to acceptance by the Professional.
 - 13) The Contractor shall maintain an up to date copy of the Work Plan at the Site during the conductance of all field activities.
- b) The Work Plan shall include the following:

- 1) The Contractor's project organization structure, including the Contractor's staffing table with names, titles and responsibilities of personnel assigned to the Project.
- 2) List of proposed Subcontractors and contact information.
- 3) Training/licensing documentation for all Contractor and Subcontractor staff.
- 4) Emergency contacts and after hours phone numbers for all Contractor staff assigned to the Project, as well as provisions for a contingency plan to be implemented in case of an emergency.
- 5) The names and locations of the disposal and recycling facilities for all removed materials.
- 6) Copies of the Contractor's permits required to complete the Work identified in the Contract Documents.
- 7) Procedures for scheduling and managing submittals, including those of Subcontractors and off-Site facilities.
- 8) Provisions to control surface water runoff entry into the Work Zone, including plans for erosion and sedimentation control measures for protecting natural resources.
- 9) Procedures for spill control, including locations and type of spill control equipment to be utilized.
- 10) Methods and materials to provide temporary fencing, temporary facilities, and temporary utilities and utility bypass during the on-Site activities.
- 11) Methods and equipment to conduct utility relocation/replacement, bypass, temporary protection/support/re-routing, and restoration, along with a diagram identifying the location(s) of each relocated utility, and the proposed location of each utility following restoration.
- 12) Procedures for conducting the Pre-Construction Survey, Post-Shoring Installation Survey, and Post-Shoring Removal Survey activities.
- 13) Copies of all waste characterization, waste profiling, and disposal facility approval for disposal of all waste streams.
- 14) Written evidence that the hazardous/non-hazardous waste transporters and TSDFs are approved for hazardous/nonhazardous waste transport, storage and disposal of all waste streams (i.e., licensing, etc.).
- 15) Copies of waste transport vehicle insurance certificates.
- 16) Road detour route and signage, as approved by the Shiawassee County Road Commission, City of Owosso, and MDOT.
- 17) Copies of excavation shoring design details including drawings, design calculations and maximum theoretical deflection based on anticipated lateral earth pressure, hydrostatic pressure, and utility/equipment loads; specifications for shoring panel materials and (material, thickness, width, and length), the arrangement, and method of assembly for the excavation shoring; and the depth to which the excavation shoring will be installed. All design calculations and design drawings are to be certified by the Contractor's Shoring Design Engineer, who is licensed to practice in the State of Michigan.
- 18) Methods and equipment proposed to install the excavation shoring, including installation sequencing, and preparation of excavation shoring installation logs.
- 19) Methods for protecting adjacent structures, pavements, property boundaries, footings, and foundations during excavation shoring installation.
- 20) Methods and procedures for conducting movement monitoring.
- 21) Methods and equipment proposed to remove the excavation shoring, including removal sequencing.
- 22) An Air Monitoring Plan that identifies methods and procedures for monitoring fugitive air emissions (vapors, dust, etc.) at the Site.
- 23) Methods and procedures for conducting vapor suppression during the shoring installation, removal, and decontamination activities.
- 24) Methods and equipment proposed to conduct temporary storage, transport, and disposal of contaminated water (decontamination, etc.).
- 25) Transportation routes for all materials removed from the Site.
- 26) List of equipment/rental equipment to be used during the Work and copies of written notification to those equipment rental companies and/or Subcontractors of the intended use of the equipment.
- 27) Methods used to secure the Site from vehicular and pedestrian traffic and to provide safe passage around the work area to pedestrian traffic blocked by the proposed on-Site facilities and barricades.
- 28) A Site Plan marked with, at a minimum, proposed locations of barricades or enclosures, staging areas, loading areas, decontamination areas, temporary facilities, dewatering system components and discharge location, erosion/surface water control measures, and air monitoring points.
- 29) Site restoration procedures.
- 30) Methods and procedures for equipment decontamination.
- 31) Quality Control Plan.
- 32) Example copies of Daily Progress Summary Reports, Daily Air Monitoring Reports and Daily Site Safety Summary Reports.

1.4 Health And Safety Plan

- a) General Requirements for the Health and Safety Plan (HASP)
 - 1) The Contractor's HASP shall be provided to the Professional for information purposes only.
 - 2) The Professional will review the HASP for completeness and will provide comments to the Contractor, but will not approve the HASP.
 - 3) The Professional may require revisions to the HASP to address activities not included by the Contractor in the HASP.
 - 4) The Contractor maintains sole responsibility for the completeness, implementation and monitoring of the HASP in compliance with the referenced regulations.
 - 5) The Contractor is responsible for implementing the HASP on behalf of all of the Subcontractors.
 - 6) Extensions to the Contract Time will not be granted if caused by delays in developing an acceptable HASP.

- 7) Conduct all operations in accordance with the HASP.
 - 8) Disregard for the provisions of the HASP shall be deemed just and sufficient cause for suspension and/or termination of the Work.
 - 9) The HASP is an on-Site enforceable document that shall guide the activities of the Contractor.
 - 10) The HASP shall define Site-specific safety provisions necessitated by all project activities performed by the Contractor and Subcontractors.
 - 11) Hazard Communication Program: A hazard communication program shall be utilized in accordance with applicable regulations.
 - 12) All Site personnel shall be briefed on safety and hygiene procedures and provisions of the HASP, and provide signed statements that they have read and understood the HASP.
 - 13) Health and Safety Meetings must be scheduled and conducted in accordance with "Project Meetings" (Section 01200).
 - 14) Special project procedures are required of the Contractor due to the potentially hazardous conditions at the Site, and include, but are not limited to, the following:
 - (a) Health and Safety
 - (b) Air Monitoring
 - (c) Odor Control
 - (d) Spill Control
 - (e) Dust Control
 - (f) Noise Control
 - (g) Excavation Procedures
 - (h) Backfill Procedures
 - (i) Soil Sidewall Sloping
 - (j) Dewatering Activities
 - (k) Confined Space Entry
 - (l) Personnel and Personal Equipment Decontamination
 - (m) Equipment Decontamination
 - 15) Notify the Professional in writing of any proposed changes to the HASP.
 - 16) The Contractor shall determine the level of personal protection (Level A, B, C, D) necessary for all Work under this Contract.
- b) The HASP shall address, but not be limited to, the following items:
- a. Air Monitoring
 - (a) The Contractor shall develop Air Monitoring Procedures in accordance with applicable Local, State and Federal requirements and shall include at a minimum the ability to monitor for dust.
 - (b) The Contractor shall include provisions for air monitoring for organic contaminants (using a photoionization detector), flammable and explosive conditions, and oxygen levels in the event that contaminated materials are encountered.
 - (c) The Air Monitoring Procedures shall specify action levels for organic concentrations, flammable and explosive conditions, oxygen levels, and dust levels at which work procedures will be modified or cease when the action levels are exceeded.
 - (d) The Contractor shall apply vapor suppression material or vent/treat vapors if modification of work procedures or cessation of work activities do not adequately address vapor accumulation or significant delays in the progression of the Work occur.
 - (e) The Air Monitoring Procedures will be submitted as part of the HASP.
 - b. Odor and Other Emissions
 - i. Provisions shall be taken to control odors and other emissions that may emanate as a result of the execution of the Work.
 - ii. The Contractor shall also modify or cease operations at the direction of the Professional, in accordance with these specifications and the Contractor's approved HASP.
 - c. Spill Control Prevention Plan
 - i. General
 1. Spill Control Procedures to govern actions taken in response to on-Site spills shall be prepared as part of the HASP.
 2. The Contractor shall be responsible for any and all spills occurring during the project.
 3. The Contractor shall be responsible for providing contingency measures for all potential spills.
 4. The U.S. DOT and/or MDOT Regulations will govern off-Site spill control.
 5. On-Site spill control shall consist of the Contractor providing equipment and personnel to perform required measures to contain and clean up spillage that may adversely affect health or the environment.
 6. Waste materials generated when cleaning a spill or a release will be collected, containerized, sampled and analyzed, transported and disposed by the Contractor at no additional expense to the Professional or City of Owosso.
 - ii. Equipment Required

1. The Contractor shall provide all necessary equipment for unexpected spills by having, at a minimum, the following equipment on Site at all times during Site work activities:
 - (a) An adequate quantity of sand, clean fill, or other approved non-combustible absorbent material sufficient to contain a spill of any volume of liquid stored or used at the Site.
 - (b) Drums (55-gallon, U.S. DOT 17-E or 17-H) in sufficient number to contain a spill of any volume of liquid stored or used at the Site.
 - (c) Shovels.
 - (d) High-pressure water or steam for decontamination of tools and equipment.
 - (e) Pumps or vacuum units shall be readily available for emergencies.
- iii. Spill Prevention and Control Procedures shall, at a minimum, include the following:
 1. Immediate notification of the Professional.
 2. Taking immediate measures to control and contain the spill within the Site boundaries. This shall include the following:
 - a. Keep unnecessary people away, isolate hazardous areas, and deny entry to unauthorized personnel.
 - b. Do not allow anyone to touch spilled material.
 - c. Stay upwind.
 3. Implementation of the following general spill control actions:
 - a. Solid Spills: Remove and place contaminated materials into staging areas. Handle any residual liquid as in "Liquid and/or Sludge Spills" in Subsection (3)(b) following.
 - b. Liquid and/or Sludge Spills: Absorb with sand, clean fill, or other non-combustible absorbent material acceptable to the Professional. Dispose of the absorbent/spill mixture in the manner specified in the previous "Solid Spills" in Subsection (a.). If a spill occurs of a potentially dilute liquid solution (e.g., decontamination fluid), the Contractor may, with the Professional's approval, sample the affected area to determine a more suitable response measure.
 - c. Decontamination procedures shall be required after cleanup to eliminate traces of the substance spill or reduce it to an acceptable level as determined by the Professional. Complete cleanup may require removal and disposal of contaminated soils. All contaminated materials including solvents, cloth, soil, and wood that cannot be decontaminated must be properly containerized, labeled, and disposed of as soon as possible.
 - d. All spills shall be noted in the Daily Progress Summary. For spills determined by the Professional to be significant, a spill report shall be prepared which will include a final disposal location.
- d. Dust Control
 - i. The Contractor shall minimize the generation of suspended particles (dust) during the project.
 - ii. Conditions that produce dust shall be minimized by the Contractor and mitigated through the application of suitable dust control procedures.
 - iii. Dust control procedures shall be submitted as part of the HASP.
- e. Noise Control
 - i. Contractor shall make the maximum use of low-noise emissions equipment according to EPA regulations.
 - ii. Comply with all Local ordinances related to construction activities.
- f. Personal Cleaning
 - i. General
 1. The Contractor shall include provisions in the HASP for personal cleaning, including designating an Exclusion Zone, in the event that contaminated materials are encountered.
 2. All personnel entering or leaving the work area Exclusion Zone shall pass through the designated personnel decontamination area to don, doff, or decontaminate their protective equipment.
 3. Boots and rubber gloves shall be free of soil and/or liquid from the Exclusion Zone prior to entering other areas.
 - ii. Washing
 1. Before eating, employees shall be required to thoroughly wash faces and hands.
 2. All sanitary wastes generated by personnel shall be collected and disposed of in a manner acceptable to the Professional.
 - iii. Clothing
 1. The Contractor shall provide all required work clothes.
 2. Work clothes shall be left in the decontamination area, as needed.
 3. No work clothing (including boots) shall be worn off or carried out of the project area unless properly decontaminated.
 4. Soiled work clothes shall be disposed of as appropriate.
 - iv. Emergency Respirators: All required respirators shall be provided and maintained by the Contractor and shall be cleaned after usage.
 - v. Packaging of Waste Items

1. All personal protective equipment and other contaminated material shall be placed in sealed containers for storage on Site.
 2. The Contractor and his personnel shall make a conscious effort to minimize the volume of contaminated materials.
 3. Legible and understandable precautionary labels shall be affixed prominently to sealed containers of contaminated scrap, waste, and debris.
 4. Containers shall be moved only with the proper equipment and shall be secured to prevent dropping or loss of control during transport.
- g. Equipment Decontamination
- i. General
 1. The Contractor shall provide provisions in the HASP for equipment decontamination in the event that contaminated material is encountered.
 2. Any item taken into the work area Exclusion Zone shall be carefully inspected and decontaminated before the item leaves the Exclusion Zone.
 3. All contaminated vehicles, equipment, tools, and materials, including excavation shoring materials removed from the ground, shall be decontaminated to the satisfaction of the Professional before it is taken off Site.
 4. Personnel performing decontamination shall be dressed at the appropriate level of protection to avoid personal contamination.
 - ii. Equipment Decontamination Station
 1. The equipment decontamination procedures shall be submitted as part of the HASP.
 2. Contractor shall provide an equipment decontamination station for removing soil from all equipment leaving the Exclusion Zone or work site.
 3. At a minimum, this shall include a high-pressure wash area for equipment and vehicles and/or a steam cleaning system.
 4. Decontamination water shall be collected and disposed of by the Contractor in conformance with all Federal, State and Local laws and regulations.
 5. Sediments shall be collected and disposed off-Site in accordance with all Federal, State and Local laws and regulations.
 6. Contractor's plan for treatment or disposal of sediments and decontamination water shall be included in the Work Plan (Section 01300).
- c) The HASP format shall contain, but not be limited to, the following:
- a. Site Characterization: Provide a brief description of Site conditions and past and current activities at the Site.
 - b. Hazard Evaluation: Provide a list and description of potential chemical and physical hazards associated with the Site contaminants and Work to be conducted.
 - c. Planning: Describe the proposed procedures for continuous updating of the HASP based on actual Site conditions, and identify the operating procedures.
 - d. Training: Identify the types and levels of training provided to all Site workers and other on-Site personnel that meet the training and medical surveillance requirements of 29 CFR 1910.120 and Michigan Part 432 of Section 24 of 1976 Public Act 15h, as amended. Provide the name, qualifications, and responsibilities of the Site Safety Officer and all health and safety staff. Provide copies of appropriate certification in the Work Plan for all individuals who will be involved in the Work. No Contractor personnel shall participate in removal work or handling of waste materials at the Site until proper and up-to-date training certification has been submitted to the Professional.
 - e. Medical Monitoring: All on-Site personnel involved in waste removal work or handling and disposal of waste materials shall be enrolled in an ongoing medical monitoring program as identified in 29 CFR 1910.120 and Michigan Part 432 of Section 24 of 1976 Public Act 15h, as amended, unless they meet the applicable exemption requirements. The HASP shall describe the details of the Contractor's Medical Monitoring Program. Provide documentation of program participation by all appropriate personnel to the Professional. This documentation shall include a copy of the physician's statement for each appropriate employee regarding any restrictions that the employee may have relative to the nature of the Work to be conducted at the Site, and a statement from the Contractor's Company regarding compliance with the requirements of medical monitoring.
 - f. Personal Protective Equipment: Identify the means of personnel protection, including the use of engineering controls, to be utilized for each Site activity as defined in U.S. EPA Standard Operating Safety Guides. Identify procedures for air monitoring in the work areas, including monitoring equipment/requirements. Identify conditions that would require increasing the level of protection during each activity. Procedures for protecting personnel from other physical hazards (i.e., heat stress, hypothermia, excessive noise, etc.) shall also be identified in this section.
 - g. Site Control: Identify the Site operating procedures including Site entry, pre-activity inspection (for physical and chemical hazards), layout, perimeter establishment, Site security and evacuation procedures. The HASP shall include, at a minimum, emergency procedures and contacts, evacuation routes, hospital locations and routes, location of first aid equipment on Site, utility names and contact numbers, restrictions (i.e., no smoking or eating in Exclusion Zone, etc.).
 - h. Site Emergencies: Provide a Contingency Plan which sets forth policy and procedures for responding to emergency situations, such as fire, utility damage, physical injury, release of hazardous materials, public notification, etc.

- i. Confined Space Entry: Provide procedures for identifying, assessing and entering confined space conditions. Identify which Site activities would require confined space entry, and include copies of any permits required to perform any of the Work within confined space.
- j. Excavation Entry: Provide procedures for identifying, assessing and entering excavations. Identify which Site activities would require excavation entry, and include steps to be taken by Contractor to protect workers and comply with Local, State and Federal codes and regulations.
- k. Waste Handling Procedures: Identify procedures that will be used to ensure safe waste handling during the removal, loading, and transportation activities.
- l. Decontamination Procedures: Identify procedures that will be used to ensure that personnel, and equipment are properly decontaminated prior to leaving the work zone.

1.5 Project Record Documents

- a) Pre-Construction, Post-Shoring Installation, and Post Shoring Removal (As-Built) Surveys
 - a) Contractor shall conduct a Site survey to identify all Site features and pre-construction conditions within the Work Zone, including locations and elevations of roadways, driveways, utilities (including inverts, if applicable), ground surface, drainage swales/ditches, utilities proposed for relocation, UST system locations (visible), etc.
 - b) Contractor shall conduct a Site survey to identify the extent of excavation shoring installed in the Work Zone. The Post-Shoring Installation Survey Drawings must include in sufficient details to the lateral limits of the excavation shoring installed, any utilities encountered/shielded/relocated/repaired/replaced, and any anomalies encountered during the excavation shoring installation activities.
 - c) Contractor shall conduct a Site survey to identify all Site features and post-Site restoration conditions within the Work Zone. The Post-Shoring Removal Survey Drawings must include in sufficient details to identify the lateral extents of the removed shoring, any utilities encountered/relocated/repaired/restored/replaced, and any anomalies encountered during the shoring installation activities. The Post-Shoring Removal Survey Drawings must include information in sufficient detail to verify that the post restoration grades and location of structures met the pre-existing conditions.
 - d) Ground surface and excavation floor elevations shall be collected at a maximum lateral grid interval of 20 feet. All elevation data shall be referenced in feet mean sea level (MSL) and supplied to the nearest 0.1 feet with the exception of utility elevation data that must be supplied to the nearest 0.01 feet.
 - e) The lateral locations of each survey point shall be referenced utilizing State Plane Coordinates ('83) and MI Geo Ref format.
 - f) The Contractor shall provide two full-sized hard copies of all Site survey data to the Professional in a minimum of three phased "As-Built" diagrams, including pre-construction, post shoring installation, and post-shoring removal diagrams. The As-Built Diagrams are required to be drawn in AUTOCAD Version 2000 (or newer), and a copy of each drawing must be provided in electronic format (i.e., pdf and AUTOCAD). Hand-drawn drawings will not be accepted. A Registered/Licensed Land Surveyor is required to conduct the Site survey activities.
- b) Existing Conditions Visual Documentation shall include the following (pre and post construction)
 - a) Date(s) collected.
 - b) Person(s) collecting the data.
 - c) Photographs (if used):
 - i. Location of each photo
 - ii. Direction photo taken
 - iii. Scale reference (common item placed next to subject of photo, when beneficial)
 - iv. Description of what is viewed in the photo.
 - d) Video (if used):
 - (a) Verbal description of what is being viewed
 - (b) Scale reference (common item placed next to subject of photo, when beneficial)
 - (c) Pan in/out to identify location and provide detail
- c) Equipment Company Notifications shall include the following
 - a) Rental company name
 - b) Type of equipment
 - c) Intended use of equipment
 - d) Potential for equipment to become contaminated
 - e) Potential contaminants of concern
 - f) Method of equipment decontamination prior to equipment leaving the Site
- d) Utility Relocation/Replacement/Temporary protection/ Support/Re-Routing Documentation
 - a) Permissions/permits obtained from the utility, easement, and right of way owners
 - b) Notices submitted to affected parties of any shutoff or interruption of service
 - c) Descriptions of original, temporary, and final locations for all affected utilities
 - d) Removal and installation phasing, including temporary support
 - e) Inspections conducted by utility, easement, and right of way owners
 - f) Quality assurance procedures

- e) Shoring Installation Logs and daily reports prepared by the Contractor documenting:
 - g) Installation methods used
 - h) Details of materials used, including any reinforcing steel or welded components
 - i) Installation phasing
 - j) Terminal depths for all shoring components
 - k) Quality assurance procedures
- f) Shoring Removal Logs and daily reports prepared by the Contractor documenting:
 - a) Removal methods used
 - b) Details of materials removed, including any reinforcing steel or welded components
 - c) Removal phasing
 - d) Quality assurance procedures
- g) Shoring Design Engineer Status Reports and Corrective Action Status Report documenting
 - a) Observations made during Shoring Design Engineer site visits
 - b) Certifications that Work is conducted in accordance with shoring design assumptions
 - c) Deficiencies noted
 - d) Corrective actions outlined to cure deficiencies
 - e) Documentation of cured deficiencies
- h) Waste Stream, Transport and Disposal Facility Documentation
 - a) Provide copies of all waste characterization analysis performed for all waste streams.
 - b) Provide copies of waste profiles provided to disposal facilities.
 - c) Provide disposal facility approvals for all waste streams.
 - d) Provide the disposal facility name, address, telephone number and contact for all waste streams.
 - e) Provide written notice from each of the disposal facilities that each is in conformance with its operating permit.
 - f) Provide copies of all disposal facility permits and operating licenses.
 - g) Provide written evidence, including the name, address and USEPA Identification Number, that the hazardous/nonhazardous waste transporters and TSDFs are approved to transport, store and receive the proposed waste streams per Federal, State and Local regulations.
 - h) Provide waste transport vehicle insurance certificates.
 - i) Provide proposed travel routes for all transport vehicles and waste streams.
- i) Waste Stream Disposal Documentation shall include the following:
 - 1) The Professional will verify and sign all manifests prior to off-Site transport.
 - 2) Individual load manifest tracking number
 - 3) Disposal facility name
 - 4) Disposal facility waste stream approval number (disposal facility specific, if applicable)
 - 5) Project information (name, location, etc.)
 - 6) Date
 - 7) Material being disposed
 - 8) Volume/Tonnage
 - (a) Non-Hazardous Solids (tons)
 - (b) Hazardous Solids (tons)
 - (c) Hazardous Liquid/Sludge (volume)
 - 9) Transport company name
 - 10) Transport vehicle identification
 - 11) Transporter signature
 - 12) Disposal facility name
 - 13) Disposal facility signature
- j) Waste Manifest Logs shall include the following:
 - a) Date
 - b) Material being disposed
 - c) Volume/Tonnage
 - (a) Non-Hazardous Solids (tons)
 - (b) Hazardous Solids (tons)
 - (c) Hazardous Liquid/Sludge (volume)
 - d) Transport company name
 - e) Transport vehicle identification
- k) Personnel Training/Licensing Documentation shall include all training/licensing documentation necessary for personnel to complete the Work including, but not limited to, 40-Hour HAZWOPER certificates, 8-Hour Refresher HAZWOPER certificates, commercial driver's licenses, Certified Operator (for dewatering discharge) license, etc.

- l) Notification of Substantially Completed Work shall include a written statement from the Contractor that the Work is substantially complete and ready for a Pre-Final Inspection.
- m) Punch List shall include a list of Work items requiring completion, repair, or removal and replacement per Professional and City of Owosso comments at Pre-Final Inspection Meetings.
- n) Notification of Completion of Work shall include a written statement from the Contractor that all Punch List items included in the Certificate of Substantial Completion have been addressed, the Work is completed and is ready for Final Inspection.
- o) Daily Progress Summaries shall include a written summary of the following:
 - a) Date.
 - b) Work accomplished during the reporting period by the Contractor and Subcontractors.
 - (a) List and description of trades working on the Project.
 - (b) The number and names of personnel working on the Project.
 - (c) Equipment being used.
 - (d) Weather conditions encountered.
 - (e) Delays encountered.
 - (f) Acknowledgement of deficiencies along with corrective actions taken on current and previous deficiencies.
 - c) Work to be accomplished in the subsequent reporting period.
 - d) Problems, real or anticipated, which should be brought to the attention of the Professional.
 - e) Notifications of any deviation from previously agreed upon Work Plans.
 - f) Conforming and defective or deficient features.
 - g) Statement that supplies and materials incorporated in the Work complies with the Contract.
 - h) Records of the Pre-Final and Final Inspections, including a punch list of items that do not conform to the Contract Documents.
 - i) Documentation of corrective actions taken.
 - j) Signature of Contractor's On-Site General Superintendent.
- p) Daily Air Monitoring Reports shall include a written summary of the following:
 - a) Date.
 - b) Field activities conducted during the reporting period.
 - c) Copies of field instrument calibration logs.
 - d) Tabulated air monitoring data including:
 - (a) Time.
 - (b) Location of reading.
 - (c) Reading.
 - (d) Personnel collecting the reading.
 - (e) Meteorological data
 - 1. Temperature
 - 2. Humidity (rain, snow, etc.)
 - 3. Wind direction and speed.
 - e) Identification of and response to readings exceeding HASP stipulations.
 - f) Signature of Contractor's On-Site General Superintendent.
- q) Daily Site Safety Summaries shall include a written summary of the following:
 - a) Site safety orientation meetings.
 - b) Site safety briefings.
 - c) Site-specific training.
 - d) Site safety inspections.
 - e) Copies of verification forms that include participant's signatures of attending Site safety orientations, briefings, Site specific training and safety inspections.
 - f) Any health and safety related incidents that occur, including corrective measures.
 - g) Problems, real or anticipated, which should be brought to the attention of the Professional.
 - h) Signature of Contractor's On-Site General Superintendent.
- r) Payment Request Forms shall include the following:
 - a) AIA G702 Form (Application and Certificate for Payment)
 - b) AIA G703 Form (Continuation Sheet)
 - c) Contractor Invoice with itemized costs for Work provided including quantity, pricing, and extended value for each line item in the Bid Schedule.

- s) Guarantee and Indebtedness Statement shall include the contractors certification of the following statements:
 - a) We guarantee that all labor and materials furnished and the Work performed by us in connection with the subject work are in accordance with the plans and specifications, authorized alterations and additions that should any defects develop or become apparent for a period of _____ year(s) from date of acceptance _____ the same shall, upon written notice, be made good by us without expense to the Owner, and that any other Work, affected in correcting such defects shall also be made good.
 - b) We certify that all payrolls, material bills, and other indebtedness connected with the work on the subject project have been paid in full.
- t) Waivers of Lien from Subcontractors and Suppliers shall include written and certified waivers of lien from all Subcontractors and Suppliers after completion of the Work activities.
- u) Consent of Surety shall include a written statement from the Contractor's Surety provider that no claims against their bonds are pending.

END OF SECTION 01300

SECTION 01400 QUALITY CONTROL

1. General

1.1 General Requirements

- a) The Contractor shall maintain quality control over suppliers, products, services, Site conditions and workmanship to produce Work of specified quality.
- b) Quality shall be as required in these Specifications or as is standard in the industry, whichever is more stringent.
- c) Costs for quality control, testing, laboratory and inspection services are considered incidental to the Project and shall be included in the appropriate line item as required to complete the Work detailed in these Specifications.
- d) The Contractor shall be responsible for re-testing of required inspection tests, quality control tests, or similar services that prove unsatisfactory and do not indicate compliance with Contract Documents, regardless of whether the original test was the responsibility of the Contractor.
- e) The Contractor shall be responsible for revising or replacing construction that inspection testing, quality control testing or similar services prove unsatisfactory and do not indicate compliance with Contract Documents, which shall be conducted at no additional expense to the State or Professional.

2. Products (Not Used)

3. Execution

3.1 Testing, Laboratory and Inspection Services

- a) All tests required by the City of Owosso must fulfill ASTM, ANSI, Commercial and other Standards for testing.
- b) The Contractor must submit a minimum of three copies of each test report to the Professional for evaluation and subsequent distribution.
- c) The following general classifications of Work require submission of test reports and/or certificates of inspection. Additional submissions may be requested by the Professional at any time:

<u>Item of Work</u>	<u>Test Type</u>	<u>Section Number</u>
Solids Disposal	Analytical Results	02610
Liquid Disposal	Analytical Results	02710

3.2 General Requirements

- a) Contractor quality control procedures shall be included as part of the Work Plan and shall include a description of the quality control procedures, personnel, and inspection procedures to be implemented for the work specified.
- b) If the Contractor fails or refuses to revise or replace construction that fails to comply with Contract Documents, the Professional may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess cost damages by the Contractor.

- c) The Professional shall notify the Contractor of any non-compliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor at the Site, shall be deemed sufficient for the purpose of notification.

END OF SECTION 01400

SECTION 01435 TESTING LABORATORY SERVICES

1. General

1.1 Description

- a) The Contractor shall furnish and/or employ and pay for an independent testing laboratory (independent lab) to perform the specific laboratory services needed for waste characterization analyses unless otherwise noted in this document.
- b) The independent lab testing includes all needed sampling containers, preservatives, storage, packaging, sample disposal and delivery costs.
- c) Laboratory analytical services will be needed in association with construction derived wastes such as solids (concrete, soil, sediment, etc.) and decontamination liquids and sludges.

1.2 Laboratory Qualifications

- a) The independent laboratory selected shall be fully certified and meet the standards set by the American Council of Independent Laboratories under the Recommended Requirements for Independent Laboratory Qualification.

1.3 Laboratory Testing

- a) All independent laboratory analyses must conform to MDEQ-specified methodology.
- b) All independent laboratory analytical results must contain the following:
 - 1) All appropriate dates including sample collection date, date of sample analysis, report date.
 - 2) Project Name, MDTMB File Number, MDTMB Index Number, and MDEQ Facility ID Number (provided by the Professional).
 - 3) Testing Laboratory name, address, telephone number, and facsimile number.
 - 4) Name and signature of chemist validating analysis.
 - 5) Identification of chemist(s) who completed analysis.
 - 6) A copy of the completed chain of custody form.
 - 7) Analytical test method(s).
 - 8) Results of testing.
 - 9) Quality control/quality assurance (QA/QC) data in support of report.
- c) Reports must be delivered within 3 days electronically (e-mail) with original, signed hard copies delivered via regular mail.

1.4 Submittals

- a) Laboratory (if not State Lab or approved overflow lab) must provide a complete QA/QC manual to Professional upon request.
- b) Laboratory if not the State Laboratory or approved overflow laboratory must provide copies of all applicable certifications to complete the work, including chemist qualifications to the Professional upon request.

END OF SECTION 01435

SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. General

1.1 Summary

- d) The Contractor must furnish and install all temporary facilities and controls required by the Work, must remove them from the Site upon completion of the Work, and the grounds and existing facilities must be restored to their original condition.
- e) Temporary facilities and controls required include, but are not limited to:
 - 10) Signage, access, utilities
 - 11) Temporary vehicular access and parking
 - 12) Maintenance of traffic
 - 13) Sanitary facilities

- 14) Temporary equipment storage areas
 - 15) Temporary utilities
 - 16) Security provisions
 - 17) Decontamination pad
 - 18) Waste collection
 - 19) Erosion and surface water control
 - 20) Spill control (on-Site and off-Site)
 - 21) Dust control
 - 22) Air monitoring and vapor control
 - 23) Construction aids
 - 24) Safety equipment
 - 25) First aid and fire protection
- f) The Contractor shall comply with industry standards, codes and applicable laws and regulations of all local, State and Federal authorities having jurisdiction, including but not limited to:
- 1) Health and safety regulations
 - 2) Environmental protection regulations
 - 3) City of Owosso and Professional rules and regulations
- g) All costs associated with furnishing, installing, maintaining and removing the temporary facilities and controls are the responsibility of the Contractor, and are considered incidental to the Project.
- h) Temporary facilities or control for snow removal, as necessary, shall be conducted at no additional cost to the State or Professional and shall not constitute reason for a significant delay in the Project Schedule.
- i) The Contractor must obtain permits as required by Local, State and Federal government authorities.
- j) The Contractor must obtain easements, when required, across private property other than that of the Site for temporary utilities.

2. Products

2.1 Materials And Equipment

- a) The Contractor must provide materials and equipment suitable for the use intended.
- b) The Contractor's facilities shall be of a size and content for adequate administration of the Work, storage of materials, and provision for personnel shelter.
- c) The Contractor shall be responsible for provision and maintenance of the equipment required for decontamination and for the maintenance of the decontamination pad, drainage pipes, collection structure and all other facilities and equipment included in the decontamination system. The Contractor shall provide an adequate and acceptable supply of decontamination water.
- d) The Contractor must provide all water for Work activities from an off-Site source unless an agreement is made between the Contractor and property Owner and is approved by the City of Owosso and Professional prior to conducting the Work activities.
- e) The materials utilized for temporary utilities may be new or used but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- f) The Contractor shall provide yard lighting of Contractor headquarters areas as the Work and location require.
- g) Erosion and Surface Water Control
 - 1) Mulch: Choose from one of the following types of mulch:
 - (a) Straw: Use small grain straw that is reasonably free of grain, weeds, seeds or mold. Hay shall not be utilized.
 - (b) Straw Mulch Blankets: Made of a uniform layer of straw with a net covering on one side. Straw should be free of grain, weeds, seeds or mold.
 - (c) Excelsior Blankets: Made of evenly distributed coarse wood fibers reinforced by netting.
 - 2) Seed for Erosion Control: For temporary control MDOT Cereal Rye specifications shall be adhered.
 - 3) Straw Bales
 - (a) Consist of rectangular-shaped bales of straw weighing at least 40 pounds per bale.
 - (b) Free from primary noxious weed seeds and rough or woody materials.
 - 4) Silt Fence: Shall be a commercially produced product capable of sustaining a minimum 30-gallon/minute/square foot flow, with apparent opening sizes of a maximum 0.600 mm and minimum No. 30 U.S. Standard Mesh.
 - 5) Where a discrepancy occurs between the above-listed materials and State or Local required materials, the more restrictive materials shall be used.

3. Execution

3.1 General

- a) Locate facilities where they will result in minimum interference with performance of the Work and property ingress/egress.
- b) Relocate and modify facilities as required.

3.2 Signage, Access, Utilities

- a) The Contractor must post appropriate construction signs to identify the limits of construction work areas, hardhat areas, construction parking and staging areas, etc.
- b) The Contractor must post appropriate signage (visible from all adjacent roadway right-of-ways) to identify any detour or alternate thoroughfare during construction activities, including vehicular and pedestrian traffic.
- c) Signage identifying shoulder work ahead for any work within the adjacent road right-of-ways is required.
- d) The Contractor must obtain written approval from the City of Owosso before connecting to existing facilities or interrupting the services to the site or vicinity.
- e) Advertising signage by contractors, subcontractors, or suppliers is not allowed.
- f) The Contractor must maintain safe and adequate pedestrian and vehicular access to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire and police stations and like establishments.

3.3 Temporary Vehicle Access And Parking

- g) The Contractor will establish designated parking areas to accommodate construction personnel.
- h) Do not allow vehicle parking on government owned street and highways.
- i) Contractor employee parking shall not interfere with the general operations of the area businesses, residences or traffic during the progress of the Work.
- j) Only Contractor vehicles required to perform the Work shall be present at the Site.
- k) Unattended vehicles must not be left running unnecessarily. Where they must be left running, the hand brake must be applied.
- l) Do not block fire lanes.
- m) The Contractor shall identify access and parking areas in the Work Plan.
- n) Remove temporary parking areas and restore those areas to pre-Work conditions prior to final acceptance, unless otherwise required by the Contract Documents.

3.4 Maintenance Of Traffic

- b) During Work, maintain and protect traffic on all affected roads on and adjacent to the Site.
- c) Maintain measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, road detours, placing of lights around and in front of the equipment and the Work.
- d) The State and Local authorities having jurisdiction shall govern the erection and maintenance of adequate warning, danger, and direction signs.
- e) Pedestrian (foot, bike, etc.) traffic shall be provided a safe, protected means of traversing around the Work Zone that does not require them to enter active vehicle traffic.
- f) The traveling public shall be protected from damage to person and property.
- g) The Contractor's traffic on roads selected for hauling material to and from the Site shall interfere as little as possible with public traffic.
- h) The Contractor shall investigate the adequacy of existing roads and the allowable load limits on these roads.
- i) The Contractor shall repair damage caused by construction operations on roads, culverts, and other structures not intended for removal.
- j) Vehicles leaving the Site that become contaminated while within the Site and vehicles required by the Professional shall be fully decontaminated.

3.5 Sanitary Facilities

- d) The Contractor must provide and maintain a sufficient number of portable temporary sanitary facilities for the use of all persons employed on the Work.
- e) The locations of the temporary sanitary facilities must be in suitable locations, properly screened from public observation, in accordance with State and Local ordinances, and approved by the Professional. The location must also allow for access by maintenance personnel (i.e., the location cannot be within the fenced work zone if maintenance personnel do not have the proper training (HAZWOPER, etc.)).
- f) The temporary sanitary facilities must comply with all Federal, State and Local code requirements.
- g) The Contractor shall rigorously enforce the use of the approved sanitary facilities provided. No use of the house and trailer facilities will be allowed.
- h) The Contractor must maintain the temporary toilets in a sanitary condition at all times and must remove them when the Work under this Contract is complete.
- i) The Contractor shall provide sufficient drinking water for all employees from approved sources.

3.6 Field Office And Storage Trailers Or Buildings

- c) The Contractor shall provide and maintain a temporary facility on Site for storage of project record documents, for display of required worker documentation, and for storage and maintenance of Work-related equipment and other related items.
- d) Establish all facilities in approved locations and properly set up for all anticipated weather conditions.

- e) Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair.

3.7 Temporary Utilities

- a) The Contractor shall make all necessary applications and arrangements for temporary electric power, phone, light, water and other utilities.
- b) Maintain and operate systems to assure continuous service.
- c) Modify and extend systems as Work progress requires.
- d) The Contractor must supply their own utilities, since no viable onsite utilities exist.

3.8 Security Provisions

- a) The Contractor is responsible for security of the work area(s) during the entire period of the Work.
- b) The Contractor shall be responsible for the security of its own equipment.
- c) Other security items, such as lighting, shall be the responsibility of the Contractor.

3.9 Decontamination Pad

- b) Need for Decontamination
 - 1) The Contractor shall be responsible for all decontamination.
 - 2) All equipment within the Exclusion Zone that contacted or potentially contacted contaminated or potentially contaminated material shall require decontamination to avoid spreading contamination into uncontaminated areas.
 - 3) All Contractor materials, equipment, and facilities that require decontamination, shall be decontaminated prior to removal from the Site.
 - 4) The Contractor shall decontaminate all Site improvements remaining within the Exclusion Zone at the completion of the Work.
 - 5) All small tools and other materials for which decontamination is difficult or uncertain shall be packaged and disposed of by the Contractor in accordance with applicable disposal regulations for contaminated materials. Examples of such equipment are personal protective equipment, rope, lumber, plastic sheeting, etc.
- c) Extent of Decontamination
 - 1) All equipment requiring decontamination shall be washed to the extent that visible contamination (soil, sludge, liquid) is removed from the equipment.
 - 2) Any vehicles exiting the Exclusion Zone shall be washed to the extent that visible contamination (soil, sludge, liquid) is removed from the vehicle body and undercarriage and no visible tracking of soil onto public roads or out of the Contamination Reduction Zone occurs.
- d) Operation and Maintenance of the Decontamination Pad
 - 1) The decontamination process shall be performed in such a manner that all water used and all soil and sludge removed during decontamination falls onto the pad and is captured by the decontamination pad.
 - 2) Liquid, sludge and sediment captured shall be removed on a daily basis or as required to prevent buildup within the decontamination pad.
 - 3) All liquid and sludge removed from the decontamination pad shall be handled in accordance with procedures identified in "Removal and Disposal of Liquids, Sludges" (Section 02710).
 - 4) All sediment removed from the decontamination pad shall be handled in accordance with procedures identified in "Removal and Disposal of Contaminated Material and Demolition Debris" (Section 02610).
 - 5) The decontamination pad shall be washed down at the completion of each day of Work.
- e) Decontamination Procedures
 - 1) Construction shall be sequenced to avoid spreading contamination into uncontaminated areas.
 - 2) Equipment shall be decontaminated to avoid spreading contamination onto previously uncontaminated equipment.
 - 3) Small equipment shall be rinsed with potable water, washed with a solution of approved non-phosphate detergent (e.g., Alconox™) and water, and rinsed with potable water.
 - 4) Alternative decontamination procedures and methods shall be approved by the Professional prior to their use.
 - 5) Perform decontamination at a specially designated decontamination area as authorized by the Professional.
- f) Removal/Demolition of Decontamination Facilities
 - 1) Prior to demolition, the Professional will verify that all contaminated material has been removed from the Site.
 - 2) Following all decontamination activities, completely remove the decontamination facility.
 - 3) Any resulting debris from demolition of the decontamination facilities will be treated as contaminated and disposed of accordingly.

3.10 Waste Collection

- a) Remove all scrap or removed material, debris or rubbish from the Project at the end of each working day and more frequently whenever the Professional deems such material to be a hazard or nuisance.
- b) No discarded material shall be deposited on the grounds of the Site without written permission from the Professional.

- c) No salvage or surplus material may be sold on the premises without the written permission of the Professional.
- d) Handle dangerous or unsanitary waste materials separately from other wastes by containerizing properly.
- e) Dispose of waste material in a lawful manner.
- f) Burning or burying waste materials on the Site will not be permitted.
- g) Washing waste materials down into ditches or waterways will not be permitted.
- h) Before the Final Inspection, the Contractor shall clean all of the Work area and existing surfaces that were affected by the Contractor's operations and make repairs for any damage or blemish caused during the Work.
- i) The costs for waste collection and disposal are considered incidental to the project. Non-impacted material, as determined by the Professional, will not be disposed with contaminated material under Line Item costs (i.e., general waste material will not be disposed with impacted soil, etc.).

3.11 Erosion and Surface Water Control

- a) General
 - 1) The Contractor shall comply with State and Local requirements.
 - 2) The Contractor shall provide permanent and/or temporary erosion and sedimentation control measures pertaining to the State and Local requirements such as selective grading and shaping, dust control, mulch, permanent seeding, mulch blankets, rip-rap, silt fence, etc.
 - 3) Control measures shall be constructed prior to the time construction starts.
 - 4) The Contractor shall perform erosion, sedimentation and surface water control to reduce the co-mingling of non-contaminated materials with contaminated materials at the Site, and reducing the potential for exacerbation of contaminants at the Site.
 - 5) Even though a specific erosion control measure may not be called out in the Specifications, this does not relieve the Contractor from his obligation under the Michigan Soil and Erosion and Sediment Control Regulations Part 91 – Soil Erosion and Sedimentation Control Act of 1994 PA 451, The Natural Resources and Environmental Protection Act (NREPA), as amended.
- b) Permanent Control: Furnish topsoil (as determined by Professional) and place mulch and seed at vegetated areas, which are disturbed due to construction activities. Mulch shall be used to keep soil in place until vegetation is established.
- c) Temporary Control
 - 1) When the use of hay bales and/or silt fence will be required to prevent soil erosion runoff, furnish and place such materials as temporary erosion and pollution control devices at locations shown in the Contractor's approved Work Plan or as directed by the Professional.
- d) Construction under this project shall be subject to review and/or inspection by the appropriate Federal, State and Local agencies responsible for ensuring the adequacy of sedimentation control measures.
- e) Treatment of run-off water into excavated areas (or soil impacted as a result of run-off water migration) is the responsibility of the Contractor and will be conducted at no additional cost to the State or Professional.
- f) Erosion Control Provisions
 - 1) Protect drainage ways from construction activities with fiber mats or by using straw bales.
 - 2) Protect areas where existing drainage ditches are to be excavated by constructing straw dikes at the top of slopes to divert storm runoff from the disturbed area or at the toe of slopes to retain sediments, as conditions permit.
 - 3) Prior to removal of all sediment control measures, remove all retained silt or other materials and handle as appropriate.
- g) Mulch
 - 1) Undertake immediately after each area has been properly prepared. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.
 - 2) Straw: Spread uniformly at a rate of 1 .5 to 2 tons per acre.
 - 3) Straw Mulch and Excelsior Blankets: Apply netting side up. Lay down slope blankets first, working up slope. Install in accordance with manufacturer's published specifications. Excelsior mulch blankets shall be made from fibers cut from sound, green timber. The blankets shall be made of a uniform web of interlocking fibers with a backing of net on one side only. The blanket shall be produced in the form of a tightly compressed roll not less than 35 inches in width, and shall have the net on the outside of the fiber mat. Roll weight when manufactured shall average 0.09 pounds per sq. foot, +/-10 %. Weight of each roll at the time of manufacture shall be written or stenciled on roll wrapper, or on an attached tag. Average of entire shipment shall be approximately 0.09 pounds per sq. foot area. The net backing for the blanket and the pins or staples for anchoring the blanket shall meet MDOT 2012 Standard Specifications for Construction under Subsection 917.15.C.2-3 and shall provide the necessary reinforcement for protecting the blanket during shipping, handling and installation.
- h) Silt Fence: Install in accordance with the manufacturer's published specifications and Local and State requirements. Install around the perimeter of the excavation shoring installation and staging areas, as Federal, State and Local regulations require, in accordance with the approved Work Plan, and/or as directed by the Professional.
- i) Straw Bales for Erosion Control
 - 1) Place to provide for temporary control of erosion and/or pollution.
 - 2) Stake with required stakes.
 - 3) Straw bales will be placed around all drainage structures to prevent sediment erosion.
- j) Maintenance

- 1) If any staples from the matting become loosened or raised, or if any matting becomes loose, torn, or undermined, the Contractor shall make satisfactory repairs immediately, with no extra compensation.
- 2) The Contractor shall maintain areas mulched or matted, with no extra compensation, until the completion of the Contract.
- 3) The Contractor shall maintain both new and existing erosion control structures and materials.
- k) Removal of Temporary Works
 - 1) The Contractor shall remove temporary erosion control measures once permanent measures have been established and are deemed acceptable by the Professional.
 - 2) Remove or level and grade to the extent required to present an aesthetically pleasing appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

3.12 Spill Control

- a) The Contractor shall clean up all spills (soil, sediment, sludge, liquids, etc.) with no additional cost to the City of Owosso or Professional.
- b) The Contractor shall provide spill control in accordance with all Local, State and Federal requirements for on-Site and off-Site spills.
- c) If a spill occurs, the Contractor shall take the following actions (at a minimum):
 - 1) Notify the Professional, Fire Department, State and any other appropriate agencies immediately.
 - 2) Take immediate measures to control and contain the spill.
 - 3) Implement general spill control actions as follows:
 - (a) Solid Spills: Remove and place contaminated materials into appropriate staging areas and properly dispose of the material as soon as possible.
 - (b) Liquid and Sludge Spills: Absorb with sand, clean fill or other non-combustible material and properly dispose of the material as soon as possible.
- d) Decontamination or remediation procedures shall be required after initial cleanup (if necessary) to eliminate detectable concentrations of the substance spilled, or to reduce it to an acceptable level as determined by the Professional.
 - 1) Complete cleanup may require excavation of contaminated soils, impacted waterways, or other impacted media.
 - 2) All contaminated materials that cannot be decontaminated must be properly containerized, labeled, and disposed of as soon as possible.
- e) The Contractor is responsible for verification of remediation sampling and analysis in accordance with DEQ-RRD regulations and requirements. The Professional shall approve the parameters for analysis, which will depend on the material spilled.
- f) The Contractor shall note the spill and response activities in the Daily Progress Summaries.
- g) The Contractor shall prepare a Spill Report that includes the following (at a minimum):
 - 1) Meet all DEQ reporting requirements.
 - 2) The location, material and amount spilled.
 - 3) The cause of the spill.
 - 4) The proposed procedures that will be taken to prohibit similar future spills.
 - 5) The cleanup and remediation efforts.
 - 6) The verification of remediation sampling and analytical results.
 - 7) Documentation of disposal of all spilled and impacted materials.
 - 8) Submit a copy of the Spill Report to the Professional within 5 days of the spill event, unless the Contractor is otherwise directed. If this is not possible, the Contractor shall submit a written statement to this effect with an estimated date for completion of the Spill Report.

3.13 Dust Control

- a) Provisions shall be taken to keep down dust during all times of construction activities, including during non-working periods.
- b) Sprinkle or treat with dust suppressants the soil at the Site, haul roads, and other operations disturbed by operations. Calcium chloride is permitted; however, the areas will require eventual reseeded for restoration.
- c) Any stockpiled soil to remain on-Site for more than 24 hours shall be underlain and covered with plastic sheeting to prevent wind/water soil erosion.
- d) Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming.
- e) Air blowing will be permitted only for cleaning non-particulate debris such as steel reinforcing bars except as otherwise specified.
- f) Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

3.14 Air Monitoring And Vapor Control

- a) The Contractor shall prepare and implement an Air Monitoring Plan that identifies the methods and procedures for monitoring vapors at the Site.
- b) The Contractor shall perform air monitoring during excavation shoring installation, removal, and decontamination activities and all other on-Site activities that generate vapors.

- c) The Contractor shall conduct air monitoring around the entire areas of Work, with increased monitoring point locations down-wind of the Work, in areas where vapor accumulation is most likely, and where vapor exposure to the public is likeliest to occur.
- d) The Contractor shall perform air monitoring during regular intervals throughout the entire day
- e) The air monitoring intervals shall be at least some minimum time period until it can be demonstrated, if possible, that no measurable concentrations of VOCs are present.
- f) Approval for reduction of air monitoring intervals will need to be obtained from the Professional prior to making any adjustment.
- g) The Contractor shall employ vapor minimization techniques as necessary to achieve compliance with air monitoring threshold values (i.e., maintain Level B, Level C, or Level D PPE).
- h) The Contractor is responsible for lowering and maintaining vapor levels below threshold limits for on-Site personnel and the public on property within and adjacent to the Work.
- i) Provide ventilation of enclosed areas and materials to disperse humidity, and prevent accumulation of dust, fumes, vapors, or gases.

3.15 Construction Aids

- a) The Contractor shall furnish, install and maintain as long as necessary and remove when no longer required, safe and adequate scaffolding, ladders, staging, platforms, chutes, railings, and hoisting equipment, as required for proper execution of the Work.
- b) All construction aids shall conform to Local, State and Federal codes or laws for protection of workers and the public.

3.16 Safety Equipment

- a) The Contractor shall furnish equipment required for personal safety of workmen in full compliance with specific safety requirements of Local, State, and Federal agencies, including OSHA.
- b) The Contractor shall conduct operations in a manner, which, with the use of proper equipment, provides maximum safety for workers (regardless of employer) and the public.
- c) The Contractors duties and responsibilities for safety in connection with the Work shall continue until such time as Work is complete and the Professional has issued a notice to the Contractor that Work is complete.

3.17 First Aid And Fire Protection

- a) The Contractor shall provide a First Aid Station with first aid station supplies to be kept in a waterproof container on-Site.
- b) The Contractor shall provide fire extinguishers of suitable size for all Work activities, Site structures and number for office and storage facilities.

END OF SECTION 01500

SECTION 01560 TEMPORARY BARRIERS AND ENCLOSURES

1. General

1.1 General Requirements

- a) The Contractor shall furnish, install, and maintain as long as necessary and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the Work for protection of property, workers and the public.
- b) The Contractor shall hold the State and Professional harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the Work under the Contract.
- c) if necessary, the Contractor shall obtain any permits from Local and State authorities for the use of temporary barriers and enclosures used during the Work, including right-of-way permits.

1.2 Barriers

- a) The Contractor shall erect and maintain temporary barriers to limit public access to the construction areas.
- b) Barriers shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic.
- c) Adequate markers shall be placed around the excavation shoring installation areas as required by permits and Local, State and Federal regulations.

- d) Barriers shall be securely placed and clearly visible with adequate illumination to provide sufficient visual warning of the hazard both day and night.
- e) Barriers shall be installed across doorways on the west side of the building to restrict access to the work area.
- f) Barriers shall also be placed across windows on the west side of the building that are sufficient to protect these windows from damage during the progression of the Work activities.

1.3 Temporary Fence

- a) The Contractor shall provide security fencing and other barriers as necessary at the Site to keep pedestrians, residents and visitors from coming into contact with any hazards generated during completion of the Work. These hazards may include, but are not limited to, the following:
 - 1) Open excavations and corresponding fall hazards.
 - 2) Heavy equipment in motion including dump trucks, soil transportation, front end loaders, excavators, etc.
 - 3) Dermal contact and inhalation exposures to contaminants at the Site.
 - 4) Operating equipment at the Site including pumps and corresponding electrical and physical energy.
 - 5) Stored energy with fluids under pressure. This includes the dewatering system (i.e., hoses and area in the immediate vicinity of the discharge).
- b) The security fencing shall entirely enclose the Contract area and be of sufficient height and sturdiness to restrict access to the aforementioned areas.
- c) Gates must be provided at all points of access.
- d) Gates must be closed and secured in place at all times when Work under the Contract is not in progress.
- e) Gates must be manned with personnel dedicated solely to restricting access when open. Concurrent responsibility such as equipment operation and manning of an open gate is not allowed.
- f) The fence must be removed and grounds restored to original condition upon completion of the Work.

1.4 Street Barricades

- a) The Contractor shall erect and maintain all street barricades, signal lights, and lane change markers during the periods that a traffic lane is closed for Contractor operations.
- b) Such street barricades and devices shall be in full compliance with all respective rules and ordinances.
- c) The Contractor shall supply all labor relating to use of flagmen as required by any permits necessary to complete the specified activities in, on or within any road right-of-ways.
- d) The street barricading and devices shall be removed from the Site when the hazard is no longer present.

END OF SECTION 01560

SECTION 01600 MATERIAL AND EQUIPMENT

- 1. The Contractor must furnish and be responsible for all materials, equipment, facilities, tools, supplies and utilities necessary for completing the Work. All materials and equipment must be provided as described in the Contract Documents and of good quality, free of defect and new and must be applied, installed, connected, erected, used, cleaned and conditioned following the manufacturer's and Suppliers' instructions.
- 2. **Delivery, Storage, and Handling:** All materials and equipment delivered to and used in the Work must be suitably stored and protected from the elements. The areas used for storage must only be those approved by the State Agency. The City of Owosso assumes no responsibility for stored material. The Ownership and title to materials will not be vested in the City of Owosso before materials are incorporated in the Work, unless payment is made by the City of Owosso for stored materials and equipment. After delivery, before and after installation, the Contractor must protect materials and equipment against theft, injury or damage from all causes. For all materials and equipment, the Contractor must provide complete information on installation, operation and preventive maintenance.
 - (a) The Contractor must cover and protect bulk materials while in storage which are subject to deterioration because of dampness, the weather or contamination. The Contractor must keep materials in their original sealed containers, unopened, with labels plainly indicating manufacturer's name, brand, type and grade of material and must immediately remove from the Work site containers which are broken, opened, watermarked and/or contain caked, lumpy or otherwise damaged materials.
 - (b) The Contractor must keep equipment stored outdoors from contact with the ground, away from areas subject to flooding and covered with weatherproof plastic sheeting or tarpaulins.
 - (a) The Contractor must certify that any materials stored off-site are:

- a) Stored on property owned or leased by the Contractor or owned by the agency.
- b) Insured against loss by fire, theft, flood or other hazards.
- c) Properly stored and protected against loss or damage.
- d) In compliance with the plans and specifications.
- e) Specifically allotted, identified, and reserved for the project.
- f) Itemized for tracking and payment.
- g) Subject to these conditions until the items are delivered to the project site.

END OF SECTION 01600

SECTION 01700 CONTRACT CLOSE-OUT

1. **Substantial Completion:** The Contractor must notify the City of Owosso and Professional when the Work will be substantially complete. If the Professional and City of Owosso agree that the project is Substantially Complete, the Professional and City of Owosso will inspect the Work. The Professional, upon determining that the Work, or a portion of the Work inspected, is substantially complete, will prepare a Punch List and will attach it to the respective Certificate of Substantial Completion. The Contractor must be represented on the job site at the time this inspection is made and thereafter must complete all Work by the date set for final acceptance by the City of Owosso.
2. **Cleaning:**
 - (a) **Regular Cleaning:** The Contractor must remove all scrap or removed material, debris or rubbish from the Project work site at the end of each working day and more frequently whenever the City of Owosso Field Representative deems such material to be a hazard. The Contractor cannot discard materials on the grounds of the State Agency without the express permission of the Project Director. No salvage or surplus material may be sold on the premises of the State Agency. No burning of debris or rubbish is allowed. Any recycled materials must be recycled and the Contractor will be required to provide recycling plan.
 - (b) **Final Cleaning:** Before final acceptance by the State, the Contractor must clean all of the Work and existing surfaces, building elements and contents that were soiled by their operations and make repairs for any damage or blemish that was caused by the Work.

END OF SECTION 01700

DIVISION 02

SITE WORK

SECTION 02100 SITE WORK SUMMARY

1. General

1.1 Summary

- a) This project will be conducted at the Eastside Cleaner's Site which is located at the southeast corner of East Main Street (M-21) and South Gould Road in Owosso, Shiawassee County, Michigan (Site). The Site is identified by DEQ Facility I.D. #50005847 and PM Environmental Inc., Project Number 01-5363-1. A location map is included as Figure 1, and a generalized diagram of the Site is included as Figure 2 within the Site Information in Appendix IV.
- b) Construction activities shall not begin at the Site until the Pre-Work Submittals and security fencing installation are completed and approved by the Professional.
- c) The work generally required for this project consists of the following:
 - 1) Pre-construction planning, permitting, notifications and submittals.
 - 2) Conduct Site Surveys for preparation of As-Built Diagrams for pre-construction and post-Site restoration features.
 - 3) Site preparation, including constructing/placement of traffic controls (as applicable), Site security measures, and establishing construction work areas (i.e., staging, decontamination, dewatering, etc.).
 - 4) Coordination with the Remediation Contractor, which will remove surface pavements and foundations and cut/cap existing utilities leads to the former 910 East Main Street building, that are required to install the excavation shoring.
 - 5) Shielding and/or relocation of subsurface and/or above ground utilities required to facilitate excavation shoring installation along the northern and eastern excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents.
 - 6) Installation of excavation shoring in the form of interlocking panels of steel sheet piling to a minimum depth of 20.0 feet below ground surface along the northern and eastern excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents.
 - 7) Coordination with the Remediation Contractor, to remove excavation shoring following excavation, backfilling, and compaction activities completed by the Remediation Contractor within the excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents.
 - 8) Decontamination of the removed shoring materials in accordance with Section 1300 "Submittals".
 - 9) Removal, transportation, disposal of impacted materials, including decontamination liquids, sludges, and solids generated during the Work.
 - 10) Utility restoration/replacement following removal of the excavation shoring.
 - 11) Post construction Site restoration, including areas disturbed due to utility relocation or restoration.
 - 12) Post construction submittals.

END OF SECTION 02100

SECTION 02150 EXISTING UTILITIES AND UNDERGROUND STRUCTURES

1. General

1.1 Description

- a) Coordinate with the Remediation Contractor, Professional, and all applicable utility Owners prior to abandonment of utilities or excavation shoring installation at utility locations and proceed as directed by the utility Owner. Acquire all required permits to do utility work.
- b) As noted, buried sewer service enters near the central portion of the north side of the former building and extends from the south side of East Main Street. Buried water and natural gas services enter near the central portion of the east side of the former building and extends from the west side of South Gould Street. (see Figure 2 – Diagram of Site in Appendix B). The Remediation Contractor will cut/cap the sewer, water, and natural gas leads at the excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents, prior to any excavation shoring installation.
- c) The Contractor shall identify, shield, relocate, and restore any subsurface and/or above ground utilities required to facilitate excavation shoring installation along the northern and eastern excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents.
- d) The Contractor shall be responsible for any and all damage to any existing utilities, which are not to be abandoned (cut/capped by the Remediation Contractor) or relocated, and are to remain in service, caused by his/her efforts. Approximate locations of known utilities are included on Figure 2 – Diagram of Site in Appendix B of the Bid Documents.
- e) Contact the affected utility as soon as any damage is discovered.
- f) The utility shall make the determination as to who makes the necessary repairs.

- g) In areas where existing underground structures are shown or suspected, carefully uncover such structures to such extent as to enable the Contractor or Professional to determine what adjustments, if any, need to be made to accommodate the presence or removal of such structures.
- h) The Contractor shall be responsible for contacting MISS DIG a minimum of 72 hours (3 working days) prior to any subsurface work. The Contractor shall also be responsible for contacting all other utilities that do not participate in the MISS DIG program. As specified in Section 01200, Contractor will arrange for utilities to be marked prior to the Pre-Construction Meeting, and the presence of applicable utility relocation/replacement/by-pass representatives is also requested.
- i) It is the responsibility of the Contractor to ensure that all Site activities and corresponding health and safety functions comply with Federal, State and Local regulations and requirements.

1.2 Layout

- a) The Contractor shall conduct a survey (lateral locations, invert elevations, grade, etc.) by a Registered/Licensed Land Surveyor for all subsurface utility replacements/reconnections. The condition and type of materials encountered for each utility, valves, fittings, etc. will be documented by the Contractor. The replacement utility locations, elevations and grade shall match the pre-removal conditions, and shall be approved by the Professional.

1.3 References

- a) Utility piping and above-ground utility work shall be conducted in accordance with all Federal, State and Local requirements, as well as industry standards.

1.4 Submittals

- a) Health and Safety Plan: Prior to proceeding with the utility work, the Contractor shall prepare and submit a HASP in accordance with the requirements of Health and Safety Plan (Section 01300).
- b) Work Plan: Prior to proceeding with the utility work, the Contractor shall prepare and submit a Work Plan as specified in Work Plan (Section 01300). The Work Plan shall provide procedures for: safe conduct of the Work for all Contractor and on-Site personnel and the public; protection of property which is to remain undisturbed; approach for shielding/re-routing/bypassing/replacing/restoring utilities; and, coordination with other work in progress. The procedures shall include a detailed description for each operation, the sequence of operations, and the safety precautions to protect personnel and property. Those procedures should be in compliance with Michigan Public Act 451, and with standards or methods in the following Federal Code of Regulations: 29 CFR 1 926.65, 40 CFR 261, 49 CFR 1 72.
- c) Project Schedule: Prior to proceeding with the utility work, the Contractor shall prepare and submit a Project Schedule in accordance with the requirements of Project Schedule (Section 01300).
- d) Provide copies of the written notification to all rental companies concerning the intended use of rental equipment and the possibility of contamination of the equipment during the utility work.
- e) Provide copies of the pre- and post- utility work As-Built Diagrams and condition and type of materials for the subsurface and above-ground utilities addressed in this Section.

1.5 Job Conditions/Requirements

- a) All utility work shall be conducted in accordance with all Federal, State and Local requirements, as well as Utility Company and industry standards.
- b) The Contractor shall coordinate the work in this Section with all other work.
- c) Equipment and materials used by the Contractor shall be specifically designed and manufactured for the function for which they are being used. The Contractor shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the work shown, specified herein, and as required to complete the project. The Contractor shall also supply all necessary power, etc. required to operate any equipment necessary for utility bypass/re-routing activities.
- d) Traffic: Conduct utility work to ensure minimum interference with roads, streets, walks, easements, and other adjacent occupied or used facilities. Do not close or obstruct roads, streets, walks, easements, or other occupied or used facilities without permission from Local and/or State governments, property Owner and Professional. Provide alternate routes (detours) around closed or obstructed traffic routes if required by the Local and/or State governments.
- e) Barriers and Enclosures: Barricade are to be installed as specified in "Temporary Barriers and Enclosures" (Section 01560).
- f) Personnel Protection: Ensure safe passage of persons around area of utility work. The Contractor shall continuously evaluate the conditions of the Site and take immediate action to protect all personnel working in and around the Site.
- g) Damage to Adjacent Structures: Prior to initiating any utility work, the Contractor shall assess the existing work and examine the area to determine the extent of work required. The Contractor shall take all necessary precautions to prevent damage to adjacent buildings, structures, or other facilities. The Contractor shall promptly repair damages caused to adjacent facilities at no cost to Professional or the State.

1.6 Use Of Existing Utilities

- a) Contractor shall arrange for any and all temporary utility services required with the appropriate utility Owner.
- b) The Contractor must supply their own utilities, since no viable onsite utilities exist.

2. Execution

2.1 General Requirements

- a) The Contractor shall perform all activities required to complete the Work, which shall include, but not be limited to, any demolition debris, utility components, and contaminated soils and groundwater necessary to complete the bypass, rerouting, removal, reconnection and replacement of utilities impacted by the Work, and as directed by the Professional.
- b) As noted, buried water, sewer, natural gas, and overhead power lines are noted near or within the proposed excavation area, including the northern and eastern excavation boundaries where excavation shoring is to be installed by the Contractor. Contractor shall protect/shield/re-route/bypass/replace/restore utilities that are within the proposed work area or will impede Site work activities, excluding the utilities that are cut/capped by the Remediation Contractor as described in Section 1.1.
- c) The Contractor shall comply with all Health and Safety requirements as determined by applicable Federal, State and Local regulations, and the requirements outlined in the HASP.
- d) No on-Site activities shall be permitted to start until the Contractor has completed a HASP that meets the requirements of Section 01300 and adequately addressed all comments provided on the HASP as part of the Professional review. Take all necessary precautions to adequately protect personnel and public and private property in the areas of the work. Personnel shall wear and utilize protective clothing and equipment as specified in the approved HASP. Eating, smoking, or drinking shall not be permitted in the Exclusion and Contamination Reduction Zones as defined in 29 CFR 1910.120. Site work zones shall be clearly marked. If a hazardous material spill occurs outside of the Exclusion Zone, stop work immediately, notify the Professional immediately, and correct the condition prior to resumption of work.
- e) Obtain necessary permits and licenses in conjunction with the utility work as required by the utility City of Owner(s), District Health Department, and other related Federal, State, and Local authorities.
- f) Construct/install utilities in accordance with the manufacturer's recommendations and Utility Company, City of Owosso, Shiawassee County and other governing body requirements, except as specified otherwise. Correct defects and errors in the fabrication of components in a manner approved by the Professional. If defects or errors in fabrication of components cannot be corrected, remove and provide non-defective components.

2.2 Utility Company Coordination / Support

- a) The Contractor shall coordinate all Utility Company bypass, relocation, removal, reconnection and replacement activities.
- b) The Contractor will provide Utility Company support necessary for the utility work. At a minimum, the Contractor shall provide access to buried lines for cutting/capping/replacement/support activities; shall provide access for shielding/re-routing the overhead electric power; and provide access for temporary bypass/support/reconnection/replacement/restoration activities.

2.3 Debris and Contaminated Material Disposal

- a) The Contractor shall obtain approval from an appropriate disposal facility as per the requirements outlined in Removal and Disposal of Contaminated Solids (Section 02610),
- b) The Contractor has the responsibility to properly characterize solids for disposal in accordance with the requirements outlined In Testing Laboratory Services (Section 01435) relating to waste characterization.
- c) Disposal of Solid Wastes: Handling and waste disposal of solid waste materials/demolition debris that will not be salvaged for recycle or reuse shall be in strict accordance with Parts 111 and 115 of Michigan Public Act 451 of 1994. This does not include any uncontaminated concrete or steel for recycling.
- d) Disposal of Non-Hazardous Waste: Contaminated material not classified as hazardous shall be disposed of in accordance with RCRA Subtitle D and Part 115 of Michigan Public Act 451 of 1994.
- e) Disposal of Hazardous Waste: Contaminated material classified as hazardous shall be disposed of in accordance with RCRA Subtitle D and Part 111 of Michigan Public Act 451 of 1994.
- f) Disposal of Wastewater: Product, sludge, ground water, rinse water and decontamination water generated at the Site will be handled and disposed as per the requirements in "Removal and Disposal of Liquids/Sludges" (Section 02710).

2.4 Manifest Records

- a) Contractor shall prepare waste transportation and disposal manifests and all other documents required for waste shipment and disposal.
- b) The Contractor shall verify wastes and quantities of each load shipped.
- c) The hazardous waste manifests and forms will be consistent with City of Owosso, US EPA, and U.S. Department of Transportation requirements.

- d) The Professional will review all manifests for completeness and accuracy and sign all manifests on behalf of the State prior to final release.
- e) Contractor shall maintain a waste disposal log on-Site, which will be submitted to the Professional upon substantial completion in accordance with Project Record Documents (Section 01300).

END OF SECTION 02150

SECTION 02254 EXCAVATION SHORING

1. General

1.1 Description

- a) The work shall consist of shielding, relocation, and restoration of sub grade and above ground utilities and other underground structures as specified in "Existing Utilities and Underground Structures" (Section 02150), design, installation, and removal of excavation shoring as specified in this Section, and waste characterization, removal and disposal as specified in "Removal and Disposal of Contaminated Solids" (Section 02610), and Removal and Disposal of Liquids, Sludges (Section 02710).
- b) The excavation shoring will be installed in a manner sufficient to facilitate the excavation of contaminated soils at the Site to a depth of 10.0 feet below ground surface within the proposed soil excavation limits depicted in Figure 3 – Proposed Excavation Plan in the "Contract Drawings" (Appendix B of the Bid Documents). The Contractor shall install excavation shoring in the form of interlocking steel sheet piling with a minimum terminal depth of 20.0 feet below ground surface along the potential northern and eastern maximum excavation limits along the property boundaries with the East Main Street and South Gould Street right-of-ways (ROWs), plus any additional shoring, bracing or reinforcement required to ensure proper excavation support at the western and southern maximum extents of the planned north and east excavation boundaries.
- c) The Contractor shall furnish all labor, materials, equipment, and incidentals required to design and install excavation shoring (including saw cutting, removal, and disposal of any concrete pavement necessary to install the shoring) and remove the shoring materials following completion of soil excavation activities by the Remediation Contractor.
- d) The Contractor shall comply with all applicable Federal, State and Local regulatory requirements related to the work summarized in this Section.

1.2 Quality Assurance

- a) Codes and Standards: The Contractor shall perform excavation shoring installation in compliance with applicable requirements of governing authorities having jurisdiction.
- b) The design and construction of the excavation shoring system and the adequacy thereof, shall be the responsibility of the Contractor.
- c) The design of the excavation shoring system must be adequate to support lateral and vertical earth pressures, unrelieved hydrostatic pressures, utility loads, traffic, and construction loads to facilitate the excavation of contaminated soils at the Site to a depth of 10.0 feet below ground surface by the Remediation Contractor, within the proposed soil excavation limits depicted in Figure 3 – Proposed Excavation Plan in the "Contract Drawings" (Appendix B of the Bid Documents), without movement or settlement of adjacent structures, roadways, utilities, and other improvements. The minimum lateral design earth pressures and all other loadings are to be determined by the Contractor's Shoring Design Engineer.
- d) The Contractor's Shoring Design Engineer is required to inspect the site prior to development of any excavation shoring system designs to familiarize him/her self with existing site conditions.
- e) The Contractor's Shoring Design Engineer is required to visit the site during excavation shoring installation and removal activities to observe the Work and verify the compatibility of the work with the design assumptions.
- f) A status report will be prepared by the Contractor's Shoring Design Engineer shall prepared a status report following each visit to the site, which shall contain a certification that the Work is being conducted in accordance with design assumptions and shall be provided to the Professional within two days of each site visit. Any deficiencies must be noted and associated corrective actions outlined in the status report. If deficiencies are noted, the Contractor's Shoring Design Engineer shall return to the Site within three days following initiation of corrective actions to verify that the deficiencies are being corrected in an adequate manner. Any corrective actions shall be documented in a corrective action status report prepared by the Contractor's Shoring Design Engineer and submitted to the Professional within two days of the corrective action site visit. The above procedures shall be repeated until corrective action status reports confirm that all deficiencies have been corrected.
- g) The Contractor shall employ an On-Site General Superintendent, who shall be responsible for overall management and administering the Work in accordance with the Work Plan and have the authority to act for the Contractor.
- h) The On-Site General Superintendent shall be an individual experienced in excavation shoring system installation activities, and whose responsibility is to ensure compliance with the Specifications.
- i) The On-Site General Superintendent shall be on-Site whenever Work is in progress.
- j) All on-Site Contractor staff shall be under the direction of the On-Site General Superintendent to perform all Work activities.

1.3 Job Conditions/Requirements

- a) All excavation shoring installation activities shall be conducted in accordance with all Federal, State and Local requirements, as well as industry standards, including ASTM-A36 Carbon Structural Steel, ASTM-A328 Steel Sheet Piling, and AISC – Manual of Steel Construction, and Department of Labor, Occupational Safety and Health Administration Standards.
- b) The Contractor shall coordinate the work in this Section with all other Work.
- c) Equipment and materials used by the Contractor shall be specifically designed and manufactured for the function for which they are being used. The Contractor shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the Work shown, specified herein, and as required to complete the Project.
- d) The Contractor will perform additional waste characterization sampling, if necessary. The Contractor is responsible for conducting any solid (soil, sediment, other contaminated materials) and liquid (product, sludge, rinse or decontamination water) waste characterization sampling, analysis and documentation required for disposal. The Contractor shall obtain approval from an appropriate permitted disposal facility in compliance with all State and Local laws and regulations for anticipated waste streams to be generated prior to excavation shoring installation activities. The Professional will provide available soil and groundwater data.
- e) Utilities in the vicinity of the proposed excavation shoring will be addressed as per the requirements outlined in "Existing Utilities and Underground Structures" (Section 02150).
- f) The Contractor is responsible for verifying that all utilities such as phone, electric, storm sewer, etc. within or close enough proximity to be damaged by the excavation shoring installation activities are disconnected and capped, or are shielded and relocated prior to initiating those activities. In the event a utility must be disconnected, it may not be disconnected until an alternate source for the utility is provided so that the service is not interrupted for more than a period of one hour. The one-hour time period is to include reconnection time to the original existing service. No utility may be disconnected without prior approval from the Professional.
- g) Should uncharted, or incorrectly charted utilities, etc. be encountered during excavation shoring installation, consult the Professional immediately for directions.
- h) Condition of Structures: The City of Owosso, Professional or Property Owner assume no responsibility for actual condition of the structures within the excavation shoring installation areas.
- i) Traffic: Conduct excavation shoring installation activities to ensure minimum interference with roads, streets, walks, easements, and other adjacent occupied or used facilities. Do not close or obstruct roads, streets, walks, easements, or other occupied or used facilities without permission from Local and/or State governments. Provide alternate routes (detours) around closed or obstructed traffic routes if required by the Local and/or State governments.
- j) Temporary Barriers and Enclosures: Install barricading as specified in "Temporary Barriers and Enclosures" (Section 01560).
- k) Personnel Protection: Ensure safe passage of persons around excavation shoring installation activities. During the excavation shoring installation work the Contractor shall continuously evaluate the conditions of surrounding areas, roadways, footings, and foundation and take immediate action to protect the structure and all personnel working in and around the Site. The Contractor shall insure that no elements determined to be unstable are left unsupported and shall be responsible for installing excavation shoring or other soil retention methods as may be required under this Contract to facilitate the planned excavation activities by the Remediation Contractor.
- l) Damage to Adjacent Structures: Prior to initiating any excavation shoring installation activities, the Contractor shall assess the existing work and examine the proposed any excavation shoring installation areas to determine the extent of work required. The Contractor shall take all necessary precautions to prevent damage to nearby buildings, structures, utilities, or other facilities. The Contractor shall promptly repair damages caused to adjacent buildings, structures, utilities, or other facilities at no cost to the City of Owosso or Professional. The Contractor shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and be responsible for increasing structural supports or adding new supports as may be required under any part of this Contract.

2. Execution

2.1 Pre-Excavation Shoring Installation Activities

- a) Project work shall not begin at the Site until all submittals outlined in Section 01300 "Submittals" are made, and approved by the Professional.
- b) The Contractor shall examine the areas and conditions under which the excavation shoring installation activities are to be performed and notify the Professional of any conditions that may be detrimental to the proper and timely completion of the Work.
- c) The Contractor shall obtain all necessary permits to conduct the Work specified in this Section.
- d) The Contractor shall manage all utilities as specified, and shall complete any support, protection/shielding and/or relocation activities prior to installing excavation shoring.
- e) The Contractor shall conduct the pre-construction survey activities prior to initiating any excavation shoring installation activities, per the requirements outlined in "Field Engineering" (Section 01050) and "Submittals" (Section 01300).

2.2 Excavation Shoring Installation

- a) The Contractor shall contact MISS DIG and other applicable local utility companies/authorities for utility identification a minimum of 3 working days prior to any sub-grade construction or excavation shoring installation activities. The Contractor shall arrange and attend any on-site meetings with utility companies for utility clearance.
- b) The Contractor shall identify, shield, relocate, and restore any subsurface and/or above ground utilities required to facilitate excavation shoring installation along the northern and eastern excavation boundaries as depicted in Figure 3A - Proposed Excavation in Appendix B of the Bid Documents, as described in Existing Utilities and Underground Structures (Section 2150), and in accordance with the Work Plan.
- c) The Contractor will conduct saw cutting, removal, and disposal of any concrete pavement necessary to install the excavation shoring.
- d) Shoring system sheet piling shall be installed with no gaps between panels.
- e) If unstable material is encountered during excavation shoring installation, measures shall be taken to retain the material in place and otherwise prevent soil displacement.
- f) Sheet piling not cut to length shall be cut off after driving at elevations as indicated in the Work Plan, if applicable.
- g) Sheet piling will be driven by recognized methods of good practice for the soil conditions present without damaging the sheet piling or adjacent existing facilities or structures.
- h) Provide protection to the sheet piling ends, as necessary, to assure penetration and prevent damage in hard driving conditions.
- i) Sufficient shoring materials shall be present on hand at all times during installation for the safe and expedient execution of the Work.
- j) Quality Assurance practices must be conducted by the Contractor during excavation shoring installation activities as outlined in Section 1.2 above.

2.3 Odor And Other Emissions

- a) Provisions shall be taken to control odors and other emissions that may emanate as a result of the execution of the Work. The Contractor shall also modify or cease operations and/or at the direction of the Professional, in accordance with these specifications and the Contractor's HASP.
- b) Organic vapor concentrations in excess of the action levels for ambient air breathing zone, flammable and explosive conditions, and oxygen level deficiency may occur during the Work activities. The Contractor shall be prepared to upgrade their level of protection as needed to complete the Work, and at no additional cost to the City of Owosso or Professional.

2.4 Post Excavation Shoring Installation Activities

- a) The Contractor shall conduct the post-shoring installation survey activities, per the requirements outlined in "Field Engineering" (Section 01050) and "Submittals" (Section 01300).

2.5 Excavation Shoring Removal

- a) Following excavation, backfilling, and compaction activities conducted by the Remediation Contractor, the Contractor shall obtain verification from the Professional that excavation shoring is ready for removal.
- b) The Contractor shall conduct excavation shoring removal activities in accordance with the Work Plan and associated HASP.
- c) All shoring materials in contact with contaminated soils and/or groundwater must be decontaminated following removal as specified in "Submittals: (Section 01300) and "Construction Facilities And Temporary Controls" (Section 01500).
- d) Decontamination materials shall be characterized, removed and disposed as specified in "Removal and Disposal of Contaminated Solids" (Section 02610), and Removal and Disposal of Liquids, Sludges (Section 02710).
- e) Shoring materials are to be transported from the site following removal and decontamination.
- f) The Contractor shall restore and/or replace any subsurface and/or above ground utilities that were shielded or relocated to facilitate the excavation shoring installation, and in accordance with the Work Plan.
- g) Areas disturbed to install excavation shoring and to shield or relocate utilities ahead of excavation shoring installation, including offsite locations, shall be restored to their original condition, excluding replacement of existing building foundation materials or parking lot concrete located within the bounds of the Site, in accordance with the Work Plan.
- h) Quality Assurance practices must be conducted by the Contractor during excavation shoring removal activities as outlined in Section 1.2 above.

2.6 Post Excavation Shoring Removal Activities

- a) All equipment contact with contaminated soils and/or groundwater must be decontaminated prior to leaving the site as specified in "Submittals: (Section 01300) and "Construction Facilities and Temporary Controls" (Section 01500).
- b) Decontamination materials shall be characterized, removed and disposed as specified in "Removal and Disposal of Contaminated Solids" (Section 02610), and Removal and Disposal of Liquids, Sludges (Section 02710).

- c) Equipment is to be transported from the site following removal and decontamination.
- d) Final cleanup shall follow closely behind shoring removal activities.
- e) Surplus Material: Upon completion of work, the Contractor shall remove and recycle/dispose of all surplus off-Site material to an off-Site location. The removal, measurement and off-Site disposal of any surplus material will be at Contractor's expense.
- f) The Contractor shall conduct the Post-Shoring Removal Survey activities after completion of shoring removal and the surface restoration activities, per the requirements outlined in "Field Engineering" (Section 01050) and "Submittals" (Section 01300).

3.12 Quality Control

- a) The Contractor shall establish and maintain a quality control system for Contract requirements and maintain records of its quality control for all operations performed including, but not limited to, the following:
 - 1) Utility line disconnection, proper protection, and reinstallation (if applicable).
 - 2) Dust, noise, and vibration control.
 - 3) Air monitoring and vapor control.
 - 4) Demolition, removal, and cleanup.
 - 5) Proper containment, characterization, and disposal of decontamination wastes.
 - 6) Observance of safety requirements.
 - 7) Observance of environmental protection requirements.

END OF SECTION 0254

SECTION 02610 REMOVAL AND DISPOSAL OF CONTAMINATED SOLIDS

1. General

1.1 Description

- a) The Contractor shall furnish all labor, materials, equipment, and incidentals required to remove, transport, and properly dispose of contaminated solids, including concrete, soils/sediments and decontamination pad materials generated during decontamination activities.
- b) Prior to the removal of contaminated materials, the Contractor shall obtain approval from an appropriate permitted disposal facility in compliance with all State, Local, and all other applicable laws and regulations.
- c) Contaminated solids removal and disposal will include only the materials necessary to be removed to complete equipment and excavation shoring materials decontamination and restoration Work. Additional solids disposal shall only be conducted at the direction of the Professional and will be paid as indicated on the Bidder's Pricing Sheet in accordance with Measurement and Payment herein.
- d) The proposed volume of solids to be disposed are approximations established for bidding purposes. The actual volume and mass excavated will depend on, among other factors, the costs presented in the bids and funds available for the Project. Changes in the proposed disposal mass does not qualify for a Change Order and will be compensated for with Unit Price payment per the Contract Documents.
- e) Unforeseen Contaminated Material: If material, not otherwise identified as contaminated, is encountered which may be dangerous to human health or the environment is disturbed during the removal and decontamination of excavation shoring materials and equipment the Contractor shall stop that portion of the Work and cover the area or wastes with a layer of 6-mil poly sheeting to prevent exposure to the elements and to avoid coming in contact with the material. The Contractor shall immediately notify the Professional concerning the possible existence of such material. Within 7 calendar days, the Contractor shall perform testing to characterize the material. The Contractor is responsible for removing contaminated material within 7 days from accumulation. If the material is not contaminated the Contractor will proceed without change. If the material is contaminated and must be disturbed or handled to complete the work, the Contractor will direct a change order pursuant to the Contract Documents. In addition, modifications to the Work Plan and HASP will be made prior to re-initiating Work at the Site to take into consideration the new materials.
- f) The Contractor shall work with the Professional to obtain an authorized signature on all manifests and documents that require a signature by the waste generator, prior to that waste leaving the Site.
- g) Certified copies of weigh tickets and associated disposal receipts signed by the disposal facility shall be documented for payment on all contaminated solids. The disposal receipts shall include tonnage of material removed from the Site and disposed at the approved disposal facility, and should be provided to the Professional within 5 days of material removal from the Site.

1.2 Job Conditions/Requirements

- a) All removal and disposal of contaminated solids shall be conducted in accordance with all Federal, State and Local requirements, as well as industry standards.
- b) The Contractor shall coordinate the work in this Section with all other Work.
- c) Equipment and materials used by the Contractor shall be specifically designed and manufactured for the function for which they are being used. The Contractor shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the Work shown, specified herein, and as required to complete the Project.
- d) The Contractor will perform additional waste characterization sampling, if necessary. The Contractor is responsible for conducting any solid (concrete, soil, sediment, other contaminated materials) and liquid (groundwater, product, sludge, rinse or decontamination water) waste characterization sampling, analysis and documentation required for disposal. The Contractor shall obtain approval from an appropriate permitted disposal facility in compliance with all State and Local laws and regulations for anticipated waste streams to be generated prior to conducting contaminated material generating activities. The Professional will provide available soil and groundwater data.

2. Products

2.1 Equipment

- a) Storage for Contaminated Solids: If stockpiling of contaminated material is approved by the Professional, the excavated material shall be temporarily stockpiled in accordance with Parts 111 and 115 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451 as amended. Minimum 6-mil poly sheeting shall be placed below and above stockpiled materials. Should any tears, defects, or other damages occur to stockpile containment and protection material, the Contractor shall replace or repair the damage at no additional cost to the State or Professional. Any further Site contamination due to the Contractor's failure to control contamination from stockpiled material shall be corrected at the Contractor's expense.
- b) Drums for Transportation and/or Storage: DOT-approved containers (Specification 17E for fluids), as required for small quantity containerization. DOT-approved trucks for transport and disposal of large quantities of soils and liquids as required by law.

3. Execution

3.1 General Requirements

- a) The Contractor shall perform all removal activities required to complete the Work. Removal shall include, but not be limited to, any solids or soils generated during site preparation and restoration activities, utility shielding/relocation/restoration/replacement and excavation shoring installation and removal, and sediments and decontamination pad materials generated during decontamination activities, as directed by the Professional.
- b) The Contractor shall comply with all air quality standards as determined by applicable Federal, State and Local regulations, and the requirements outlined in the HASP.
- c) No on-Site activities shall be permitted to start until the Contractor has adequately addressed all comments provided on the HASP as part of the Professional and State reviews. The HASP shall contain a Spill Control Contingency Plan (SCCP). Take all necessary precautions to adequately protect personnel and public and private property in the areas of the work. Personnel shall wear and utilize protective clothing and equipment as specified in the approved HASP. Eating, smoking, or drinking shall not be permitted in the Exclusion and Contamination Reduction Zones as defined in 29 CFR 1910.120. Site work zones shall be clearly marked. If a hazardous material spill occurs outside of the Exclusion Zone, stop work immediately, notify the Professional immediately, and correct the condition prior to resumption of work in accordance with the SCCP.
- d) Prior to commencing with removal or demolition activities, the Contractor shall conduct initial Site inspections in accordance with provisions of the HASP. The Contractor shall locate and clearly delineate and mark in the field the Exclusion Zone, the Contamination Reduction Zone, and the Support Zone, as directed by the Contractor's Safety Officer pursuant to health and safety considerations as identified in the HASP. The limit of the Exclusion Zone shall not be decreased to less than the outer limits of known contaminated material.
- e) Obtain necessary permits and licenses in conjunction with waste removal, hauling, and disposition, and furnish timely notification of such actions as required by Federal, State, and Local authorities.
- f) All vehicles and equipment entering the Exclusion Zone shall be considered contaminated and shall not leave the Exclusion Zone without being properly decontaminated as specified in the Contractor's HASP and "Construction Facilities and Temporary Controls, Decontamination Pad" (Section 01500). Route traffic within the Exclusion Zone away from remediated areas to prevent recontamination of these areas.

3.2 Contaminated Solids Removal, Loading And Handling

- a) In the event that contaminated solids are not loaded directly onto a transport vehicle (i.e. dump truck or similar), the following procedures shall be followed:

- 1) The Contractor shall implement the procedures for handling drums and bulk containers in accordance with the Contractor's approved Work Plan.
 - 2) The Contractor shall inspect each container to assure its integrity prior to being moved.
 - 3) Labeling of drums and bulk containers shall be performed in accordance with 40 CFR 261, and 49 CFR 172, Part 111 of the Michigan Public Act 451, and as proposed in the Contractor's approved Work Plan.
 - 4) The Contractor shall construct a storage/stockpile area prior to removal of any debris or contaminated soils. Minimum 6-mil poly sheeting shall be placed below and above stockpiled materials. Separate areas shall be established for staging/stockpiling contaminated and non-contaminated materials. All material shall be staged/stockpiled in accordance with Part 115, Rules 129 and 130 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451 as amended.
- b) The Contractor shall perform all loading activities to minimize the formation of dust.
 - c) All transport vehicles shall be clean and empty prior to arriving on Site. Clean vehicles will minimize the potential for contaminants from other sites being released at the Site. Clean vehicles will also reduce the risk for non-Site contaminants mixing with the on-Site liquids and sludges and creating inaccurate manifest, transport and disposal procedures and potential disposal approval forfeiture.
 - d) No transport vehicles shall be allowed to leave the Site that are leaking or spilling materials.
 - e) The Contractor shall inspect transport vehicles for soil adhesion to wheels and undercarriage and, if encountered, remove and properly handle those soils prior to the vehicle leaving the Site.
 - f) Do not overfill vehicles or containers.
 - g) All trucks transporting waste for off-Site disposal shall be covered and secured in accordance with all applicable Federal, State and Local requirements.
 - h) The Contractor shall ensure that contaminated material accumulated in suitable vehicle/accumulation units are weatherproofed. The weather proofing shall be in accordance with Parts 111 and 115 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451 as amended.
 - i) Incidental Garbage and Rubbish: All incidental garbage and rubbish generated by Contractor activities shall be placed in approved Contractor-furnished containers to prevent the spread and accumulation of dust and dirt, and shall be removed from the area as often as necessary, but not less than at least once at the end of each week. Incidental garbage and rubbish shall not be disposed with the contaminated material.

3.3 Contaminated Solids Disposal

- a) The Contractor shall obtain approval from an appropriate disposal facility as per the requirements outlined in Paragraphs 1.1 and 1.2 above.
- b) The Contractor shall dispose of contaminated solids at a facility pre-approved by the Professional. The Contractor has the responsibility to properly characterize the material for disposal in accordance with the requirements outlined in Paragraph 1.1 above relating to Unforeseen Contaminated Material.
- c) Disposal of Solid Wastes: Handling and waste disposal of solid waste materials/demolition debris that will not be salvaged for recycle or reuse shall be in strict accordance with Part 115 of Michigan Public Act 451 of 1994. This does not include any uncontaminated concrete or steel for recycling.
- d) Disposal of Non-Hazardous Waste: Contaminated material not classified as hazardous shall be disposed of in accordance with RCRA Subtitle D and Part 115 of Michigan Public Act 451 of 1994.
- e) Disposal of Hazardous Waste: Contaminated material classified as hazardous shall be disposed of in accordance with RCRA Subtitle D and Part 111 of Michigan Public Act 451 of 1994.
- f) Disposal of Wastewater: Product, rinse water and decontamination water generated at the Site will be handled and disposed as per the requirements in "Removal and Disposal of Liquids, Sludges" (Section 02710).

3.4 Manifest Records

- a) Contractor shall prepare waste transportation and disposal manifests and all other documents required for waste shipment and disposal.
- b) The Contractor shall verify wastes and quantities of each load shipped.
- c) The hazardous waste manifests and forms will be consistent with City of Owosso, US EPA, and U.S. Department of Transportation requirements.
- d) The Professional will review all manifests for completeness and accuracy and sign all manifests on behalf of the State prior to final release and transfer off the Site.
- e) Contractor shall maintain a waste disposal log on-Site, which will be submitted to the Professional in accordance with "Submittals" (Section 01300).

END OF SECTION 02610

SECTION 02710 REMOVAL AND DISPOSAL OF LIQUIDS, SLUDGES

1. General

1.1 Description

- a) The Contractor shall furnish all labor, materials, equipment, and incidentals required to remove, transport, and properly dispose of all liquids and sludges generated during the project, including rinse and decontamination water.
- b) Prior to the removal of liquid and sludges, the Contractor shall obtain approval from an appropriate permitted disposal facility in compliance with all State, Local, and all other applicable laws and regulations.
- c) Liquid, sludge, rinse and decontamination water removal and disposal will include only that necessary to be removed to complete the excavation shoring installation Work. Additional water and/or product removal and disposal shall only be conducted at the direction of the Professional.
- d) Unforeseen Contaminated Material: If material, not otherwise identified as contaminated, is encountered which may be dangerous to human health or the environment is disturbed during the removal and disposal of liquids and sludges, the Contractor shall stop that portion of the Work and undertake measures to prevent exposure to the elements and to avoid coming in contact with the material. The Contractor shall immediately notify the Professional concerning the possible existence of such material. Within 7 calendar days, the Contractor shall perform testing to characterize the material. The Contractor is responsible for removing contaminated material within 21 days from accumulation. If the material is not contaminated the Contractor will proceed without change. If the material is contaminated and must be disturbed or handled to complete the work, the Contractor will direct a change order pursuant to the Contract Agreement. In addition, modifications to the Work Plan and HASP will be made prior to re-initiating work at the Site to take into consideration the new materials.
- e) The Contractor shall work with the Professional to obtain an authorized signature on all manifests and documents that require a signature by the waste generator, prior to that waste leaving the Site.
- f) The Contractor, when possible, shall distinguish between liquids or sludge generated from decontamination or rinsing procedures, dewatering, excavation and surface water or rainwater contacting contaminated media on the manifests and/or disposal receipts.
- g) Certified copies of the disposal receipts signed by the disposal/recycling facility shall be documented for payment on all liquids and sludges.

1.2 Job Conditions/Requirements

- a) All removal and disposal of liquids and sludges shall be conducted in accordance with all Federal, State and Local requirements, as well as industry standards.
- b) The Contractor shall coordinate the work in this Section with all other Work.
- c) Equipment and materials used by the Contractor shall be specifically designed and manufactured for the function for which they are being used. The Contractor shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the work shown, specified herein, and as required to complete the project.
- d) The Contractor will perform additional waste characterization sampling, if necessary. The Contractor is responsible for conducting any liquid (groundwater, product, sludge, rinse or decontamination water) waste characterization sampling, analysis and documentation required for disposal. The Contractor shall obtain approval from an appropriate permitted disposal facility in compliance with all State and Local laws and regulations for anticipated waste streams to be generated prior to conducting liquid or sludge generating activities. The Professional will provide available soil and groundwater data.
- e) Traffic: Conduct liquid and sludge removal and disposal operations to ensure minimum interference with roads, streets, walks, easements, and other adjacent occupied or used facilities. Do not close or obstruct roads, streets, walks, easements, or other occupied or used facilities without permission from Local and/or State governments. Provide alternate routes (detours) around closed or obstructed traffic routes if required by the Local and/or State governments.
- f) Barriers and Enclosures: Barricade open excavations occurring as part of this work as specified in "Temporary Barriers and Enclosures" (Section 01560).
- g) Personnel Protection: Ensure safe passage of persons around area of liquid and sludge removal, storage and disposal activities. The Contractor shall continuously evaluate the conditions of the Site and take immediate action to protect all personnel working in and around the Site.
- h) Damage to Adjacent Structures: Prior to initiating any liquid and sludge operations, the Contractor shall assess the existing work and examine the area to determine the extent of work required. The Contractor shall take all necessary precautions to prevent damage to adjacent structures, nearby buildings, or other facilities. The Contractor shall promptly repair damages caused to adjacent facilities at no cost to the State or the Professional.

2. Products

2.1 Equipment

- a) Storage for Contaminated Liquids/Sludges: If on-Site storage of liquids and sludges is approved by the Professional, the material shall be temporarily stored in appropriate containers within secondary containment, and the secondary containment shall be adequately covered to reduce the potential accumulation of precipitation. Should any tears, defects, or other damages occur to the containers or secondary containment and protection material, the Contractor shall replace or repair the damage at no additional cost to the State or Professional. Any further Site contamination due to the Contractor's negligence to control contamination from temporarily stored liquids and sludges shall be corrected at the Contractor's expense.
- b) Storage Containers for Contaminated Water, Product, or Sludge: The contaminated water, product or sludge shall be placed in appropriate containers in accordance with all Federal, State, or Local regulations, unless directly loaded into the transport vehicle (tanker, vac truck, etc.). All storage containers shall be new and/or clean and empty prior to arriving on Site.
- c) Drums for Transportation and/or Storage: DOT-approved containers (Specification 17E for fluids), as required for small quantity containerization. DOT-approved trucks for transport and disposal of large quantities of soils and liquids as required by law.

3. Execution

3.1 General Requirements

- a) The Contractor shall perform all liquid and sludge removal and disposal activities required to complete the Work. Removal and disposal shall include, but not be limited to, liquids generated during decontamination or rinsing procedures, and surface water or rainwater contacting contaminated media as directed by the Professional. Every reasonable effort shall be made to minimize the number of loading/transport events.
- b) The Contractor shall comply with all air quality standards as determined by applicable Federal, State and Local regulations, and the requirements outlined in the HASP.
- c) No on-Site activities shall be permitted to start until the Contractor has adequately addressed all comments provided on the HASP as part of the Professional and State reviews. The HASP shall contain a Spill Control Contingency Plan (SCCP). Take all necessary precautions to adequately protect personnel and public and private property in the areas of the work. Personnel shall wear and utilize protective clothing and equipment as specified in the approved HASP. Eating, smoking, or drinking shall not be permitted in the Exclusion and Contamination Reduction Zones as defined in 29 CFR 1910.120. Site work zones shall be clearly marked. If a hazardous material spill occurs outside of the Exclusion Zone, stop work immediately, notify the Professional immediately, and correct the condition prior to resumption of work in accordance with the SCCP.
- d) Prior to commencing with removal or demolition activities, the Contractor shall conduct initial Site inspections in accordance with provisions of the HASP. The Contractor shall locate and clearly delineate and mark in the field the Exclusion Zone, the Contamination Reduction Zone, and the Support Zone, as directed by the Contractor's Safety Officer pursuant to health and safety considerations as identified in the HASP. The limit of the Exclusion Zone shall not be decreased to less than the outer limits of known contaminated material.
- e) Obtain necessary permits and licenses in conjunction with waste removal, hauling, and disposition, and furnish timely notification of such actions as required by Federal, State, and Local authorities.
- f) All vehicles and equipment entering the Exclusion Zone shall be considered contaminated and shall not leave the Exclusion Zone without being properly decontaminated as specified in the Contractor's HASP and "Construction Facilities and Temporary Controls, Decontamination Pad" (Section 01500). Route traffic within the Exclusion Zone away from remediated areas to prevent recontamination of these areas.

3.2 Liquid And Sludge Removal, Loading And Handling

- a) The Contractor is encouraged to load liquids and sludge directly onto trucks for removal and disposal.
- b) In the event that liquids or sludges are not loaded directly onto a transport vehicle, the following procedures shall be followed:
 - 1) The Contractor shall implement the procedures for handling drums and bulk containers in accordance with the Contractor's approved Work Plan.
 - 2) The Contractor shall inspect each tank or container to assure its integrity prior to being moved.
 - 3) Labeling of drums and bulk containers shall be performed in accordance with 40 CFR 261, and 49 CFR 172, Part 111 of the Michigan Public Act 451, and as proposed in the Contractor's approved Work Plan.
 - 4) The Contractor shall construct secondary containment for the containers utilized to temporarily store liquids and sludges. Separate areas shall be established for storing separate phases of liquids (water, product, sludge), as necessary to reduce characterization and/or disposal costs.
- c) All trucks transporting waste for off-Site disposal shall be covered and secured in accordance with all applicable Federal, State and Local requirements.
- d) All transport vehicles shall be clean and empty prior to arriving on Site. Clean vehicles will minimize the potential for contaminants from other sites being released at the Site. Clean vehicles will also reduce the risk for non-Site contaminants

mixing with the on-Site liquids and sludges and creating inaccurate manifest, transport and disposal procedures and potential disposal approval forfeiture.

- e) No transport vehicles shall be allowed to leave the Site that are leaking or spilling materials.
- f) The Contractor shall inspect transport vehicles for soil adhesion to wheels and undercarriage and, if encountered, remove and properly handle those soils prior to the vehicle leaving the Site.
- g) Do not overfill vehicles or containers.
- h) The Contractor is responsible for any and all actions and costs necessary to remedy waste spilled in loading or transit.

3.3 Liquid And Sludge Disposal

- a) The Contractor shall obtain approval from an appropriate disposal facility as per the requirements outlined in Paragraphs 1.1 and 1.2 above.
- b) Disposal of Liquid and Sludge: Product, rinse water, and decontamination water generated at the Site shall be disposed in accordance with all Federal, State and Local regulations.

3.4 Manifest Records

- a) Contractor shall prepare waste transportation and disposal manifests and all other documents required for waste shipment and disposal.
- b) The Contractor shall verify wastes and quantities of each load shipped.
- c) The hazardous waste manifests and forms will be consistent with City of Owosso, US EPA, and U.S. Department of Transportation requirements.
- d) The Professional will review all manifests for completeness and accuracy and sign all manifests on behalf of the State prior to final release and transfer off the Site.
- e) Contractor shall maintain a waste disposal log on-Site, which will be submitted to the Professional in accordance with "Submittals" (Section 01300). The waste disposal log shall record the type and quantity of materials and liquids removed from the Site.

END OF SECTION 02710

APPENDIX A
GLOSSARY

GLOSSARY

Activity—An element in the Progress Schedule establishing a requisite step, or the time and resources required, for completing the part of the Work associated with that Activity.

Addenda—Written instruments that are used by the City of Owosso and/or Professional to incorporate interpretations or clarifications, modifications and other information into the Bidding Documents. An Addendum issued after Bid opening to those Bidders who actually submitted a Bid, for the purpose of re-bidding the Work without re-advertising, is referred to as a post-Bid Addendum.

Alternate—Refers to work specified in the Bidding Documents for which the Bidder must bid a Bid Price.

Apparent Low Bidders: Those Bidders whose Base Bid, when added to those specific Alternates the City of Owosso intends to accept, yields the three lowest sums of Bid and Alternates.

Authorized Technical Data—Information and data contained in a report of exploration and tests of subsurface conditions. Also, any physical data (dimension, location, conditions, etc.) contained in those Drawings of physical conditions of existing surface and subsurface facilities.

Best Value—The bids will be evaluated for best value based on price and qualitative components that may include but are not limited to technical design, technical approach, quality of proposed personnel, and management plans.

Bid—Written offer by a Bidder for the Work, as specified, which designates the Bidder's Base Bid and Bid Prices for all Alternates. The term *Bid* includes a *re-bid*.

Bidder—The Person acting directly, or through an authorized representative, who submits a Bid directly to the City of Owosso.

Bidding Documents—The proposed Contract Documents as advertised, and all Addenda issued before execution of the Contract.

Bid Price—The Bidder's price for a lump sum item of work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

Bid Security—Security serving as a guarantee that the Bidder will conform to all conditions.

Bidding Requirements—The Advertisement, Instructions to Bidders, Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments and qualification submittals, as advertised and as modified by Addenda, for the purpose of governing bidding and award of the Contract.

Board—The Administrative Board of City of Owosso.

Bond— Security furnished by the Contractor, as required by the Contract Documents.

Business Day—Any Day except Saturdays, Sundays and holidays observed by the City of Owosso.

Bulletin—A request used by the City of Owosso to describe a change in the Work under consideration by the City of Owosso and to request the Contractor to submit a proposal for the corresponding adjustment in Contract Price and/or Contract Time, if any.

Calendar Day—Every day shown on the calendar, Saturdays, Sundays and holidays included.

Cash Allowance—An **City of Owosso**-specified sum included within the Contract Price to reimburse the Contractor for the actual purchase/furnished cost of materials and/or equipment or other designated items, as specifically provided in the Contract Documents. Although the scope (e.g., the required quantity) of any Work covered by a Cash Allowance is sufficiently detailed in the Contract Documents for the purposes of bidding the required labor costs, Subcontract costs, construction equipment costs and general conditions costs and Fee, it is understood that the required materials, equipment or other designated items are of uncertain purchase cost at the time of Bid or are yet to be specified in more detail by the Professional as to quality, appearance, durability, finish and such other necessary features affecting purchase price.

Change Order—A written order issued and signed by the City of Owosso, which amends the Contract Documents for changes in the Work or an adjustment in Contract Price and/or Contract Time, or both.

Contract Award—The official action of the City of Owosso awarding the Contract to the Contractor.

Contract Documents—Written and graphic documents that form the legal agreement between the City of Owosso and the Contractor, consisting of this document, completed Bid and Contract forms, terms and conditions of the contract, specifications, drawings, addenda, Notice of Award, Notice-to-Proceed and contract change orders.

Contract Price—The total compensation, including authorized adjustments, payable by the City of Owosso to the Contractor (subject to provisions for Unit Price Work).

Contract Times—The Contract Times for the entire Work are the periods allowed, including authorized adjustments, for Substantial Completion and final completion of the Work. The Contract Times for a designated portion of the Work are the periods allowed for Substantial Completion and final completion of any such portion of the Work, as specified in the Contract Documents.

Contractor—Business enterprise with which the City of Owosso has entered into the Contract.

Correction Period—Period during which the **Contractor** must, in accordance with the Contract Documents, (a) correct or, if rejected, remove and replace Defective Work, and (b) maintain warranties for materials and equipment in full force and effect.

Cost of the Work Involved—The sum of all costs that would be, or actually were, necessarily incurred by the Contractor in providing any Work Involved with the related change, less the costs that would be, or would have been, incurred by the Contractor to provide such Work without the related change.

Defective—As determined by the Professional, an adjective which when referring to or when applied to the term “Work” refers to (a) Work not conforming to the Contract Documents or not meeting the requirements of an inspection, test or approval, or (b) Work itemized in a Punch List which the Contractor fails to complete or correct within a reasonable time after issuance of the Punch List by the Professional.

Delay—Any act or omission or other event that in any manner adversely affects or alters the schedule, progress or completion of all or any part of the Work. Delay is a generic term intended to include deferral, stoppage, slow down, interruption and extended performance, and all related hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses.

Division—Each of the numbered, distinct parts into which the Specifications are divided.

Drawings—Part of the Contract Documents showing the Work. Drawings must neither serve nor be used as Shop Drawings.

Emergency—A condition affecting the safety or protection of persons, or the Work, or property at or adjacent to the site.

Fee for the Work Involved (Fee)—An established, percentage mark-up on the Cost of the Work Involved which is allowed to the **Contractor** for (a) reasonable administrative costs, and (b) negotiated, reasonable profit on the Cost of the Work Involved.

Hazardous Material—Asbestos containing materials (ACMs), Polychlorinated biphenyls (PCBs), petroleum products, such construction materials as paint thinners, solvents, gasoline, oil, etc., and any other like material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by federal, State or local Laws governing the protection of public health, natural resources or the environment.

Bid Proposal (ITB)—The solicitation document presenting the terms and conditions that will become part of the Contract when the Bid is accepted.

Law(s)—Means federal, State and local statutes, ordinances, orders, rules and/or regulations.

Means and Methods—Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

Notice of Award—Written notice accepting the Bid to the lowest responsive, responsible Bidder and designating the Contract Price (and establishing the Alternates accepted by the City of Owosso).

Notice-to-Proceed—Written notice issued by the Professional directing the Contractor to commence the construction activities and establishing the start date of the Contract Time.

On-Site Inspection—The Professional’s on-site examination of the Contractor’s completed or in progress Work to determine and verify to the Project Director that the quantity and quality of all Work complies with the requirements of the Contract Documents.

City of Owosso—City of Owosso, with whom the Contractor has entered into the Contract and for whom the Work is to be provided.

City of Owosso Field Representative—A City employee or consultant, providing on-site, periodic observation and documentation of the Work for compliance with the Contract Documents.

Partial Use—Use by the City of Owosso of a designated portion of the Work before accomplishing Substantial Completion of the entire Work. Partial Use does not mean Substantial Completion of the portion of the Work placed in use by the City of Owosso.

Person—Individuals, partnerships, corporations, receivers, trustees, joint ventures or any other legal entity and any combinations of any of them.

Political Subdivision—Any county, city, village or other local unit of the State, including any agency, department or instrumentality of any such county, city, village or other local unit.

Post-Bid Submittal—A Qualification Submittal required of the Bidder selected before Contract Award, and which is used by the City of Owosso in the evaluation of the Bid of the selected Bidder.

Professional Services Contractor (Professional)—The individual or business entity who has the authority to practice the design disciplines required by the Contract Documents. An Agency with appropriate licensing may replace the PSC in their role if a consultant is not used.

Project—The total construction, which includes the Work and possibly other work completed by others, as indicated in the Contract Documents.

Project Director—Designated State employee(s) (a) Responsible for directing and supervising the Professional's services during the period allowed for completion of the Work; and/or (b) Acting as representative for the City of Owosso and for the enforcement of the Contract Documents, approving payment to the Contractor and coordinating the activities of the State, City of Owosso, Professional and Contractor.

Project Schedule—Work Schedule that shows the Contractor's approach to planning, scheduling and execution of the Work and that accurately portrays completed Work as to sequencing and timing, as provided in the Contract Documents.

Project Specifications—The Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials, equipment, construction systems, standards and workmanship.

Provisionary Allowance—An amount included within the Contract Price to reimburse the Contractor for the cost to furnish and perform Work that is uncertain because, for example, it is indeterminate in scope and may not be shown or detailed in the Contract Documents.

Punch List—A list of minor items to be completed or corrected by the Contractor, any one of which do not materially impair the use of the Work for its intended purpose.

Record Documents—Drawings, Specifications, Addenda, Change Orders, Change Authorizations, Bulletins, inspection, test and approval reports, photographs, written clarifications and interpretations and all other documents recording, or annotated to show, all revisions and deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

Records—Books, reports, documents, electronic data, and other evidence relating to the bidding, award and furnishing and performance of the Work.

Recycled Material—Recycled paper products, structural materials made from recycled plastics, re-refined lubricating oils, reclaimed solvents, recycled asphalt and concrete, recycled glass products, re-treaded tires, ferrous metals containing recycled scrap metals and all other materials that contain (a) waste materials generated by a business or consumer, (b) materials that have served their intended purpose, and/or (c) materials that have been separated from solid waste for collection, recycling and disposition in the percentage determined by the State as provided by Law.

Remediation Contractor—the contractor retained by the State of Michigan to complete contaminated soil excavation activities at the Site.

Request for Payment—The form provided by the City of Owosso to be used by the Contractor in requesting payment for Work completed, which must enclose all supporting information required by the Contract Documents.

Schedule of Values—A schedule of pay items, which subdivides the Work into its various parts and which details, for each itemized part, cost and pricing information required for making payments for Work performed. The sum of all pay item costs in the Schedule of Values must equal the Contract Price for the Work.

Shop Drawings—Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the **Contractor** to illustrate some part of the Work, or by a Supplier and submitted by the Contractor to illustrate items of material or equipment.

Shoring Installation Contractor—Business enterprise contracted by the City of Owosso to install excavation shoring at the northern and eastern excavation boundaries as depicted on Figure 3A - Proposed Excavation in Appendix IV.

Soil Erosion and Sedimentation Control—The planning, design and installation of appropriate Best Management Practices designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. Soil erosion and sedimentation control in City of Owosso is regulated under The Natural Resources Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq. Soil erosion and sedimentation control associated with this Contract is monitored and enforced by the DTMB-FBSA.

State— the State of Michigan in its governmental capacity, including its departments, divisions, agencies, boards, offices, commissions, officers, employees and agents.

State Construction Code—The Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq.

Subcontractor—A Person having an agreement with the Contractor to provide labor at the site and furnishing materials and/or equipment for incorporation into the Work.

Submittals—Includes technical Submittals, Progress Schedules and those other documents required for submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, Operation and Maintenance (O&M) Manuals, test procedures and any other Submittal the Contract Documents require the **Contractor** to submit to demonstrate how the items covered, after installation or incorporation into the Work, will conform to the information given in the Contract Documents and be compatible with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

Substantial Completion—The Work, or a portion of the Work designated in the Contract Documents as eligible for separate Substantial Completion, has been completed in accordance with the Contract Documents as determined by the Professional, to the extent that the City of Owosso can use or occupy the entire Work, or the designated portion of the Work, for the use intended without any outstanding, concurrent Work at the site, except as may be required to complete or correct Punch List items.

Supplier—A manufacturer or fabricator, or a distributor, material man or vendor representing a manufacturer or fabricator, who has an agreement with the Contractor to furnish materials and/or equipment.

Underground Utilities—Pipelines, piping, conduit, duct, cables, wells, tanks, tunnels and appurtenances, or other similar facilities, installed underground to convey or support conveyance of potable water, sprinkler or irrigation water, fire protection systems, electricity, gases, steam, petroleum products, sewerage and drainage removal, telephone, communications, cable TV, traffic or control systems.

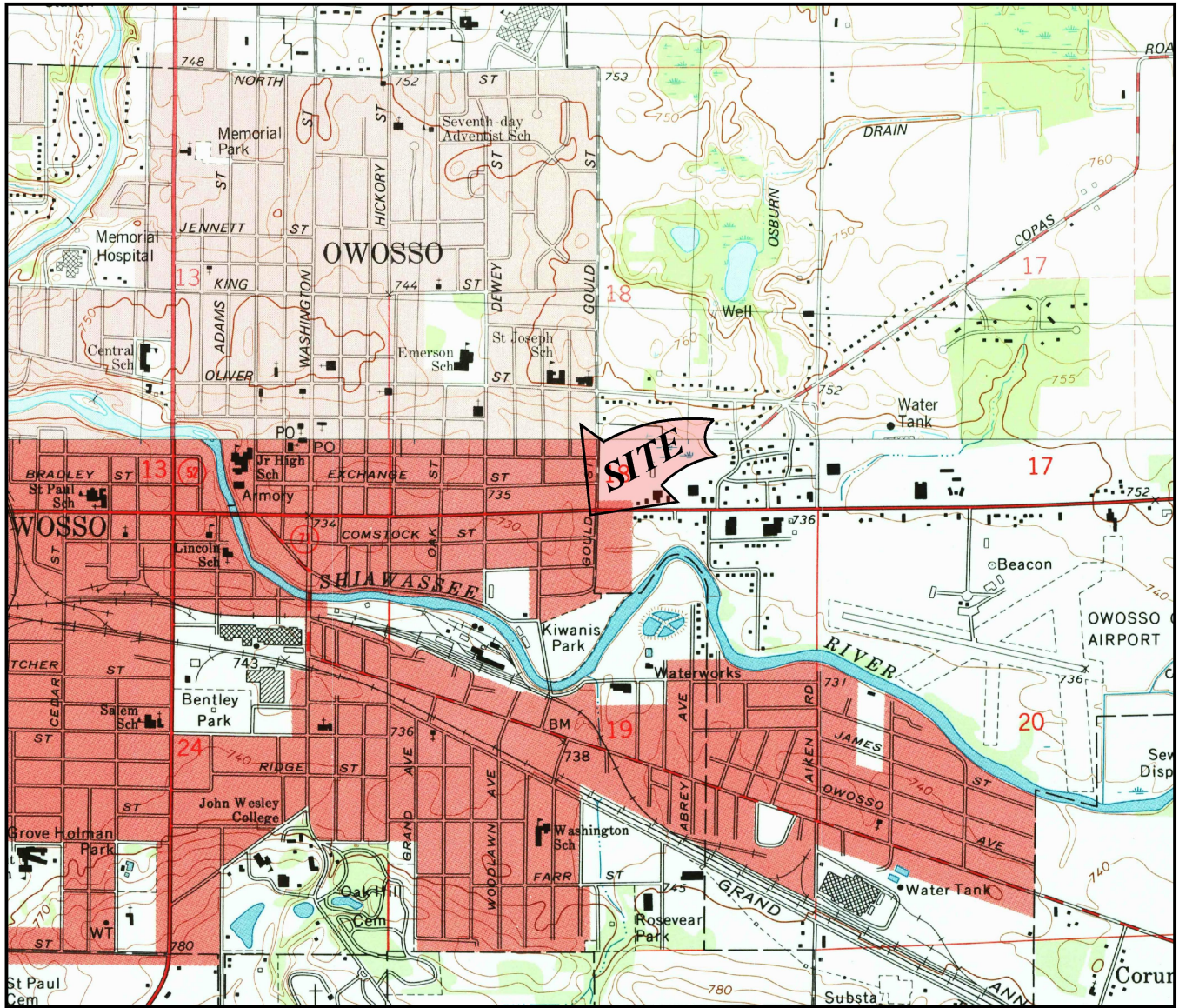
Unit Price Work—Work involving specified quantities (i.e., related Work quantities) which when performed is measured by the Professional and paid using the measured quantities and unit prices contained in the Contract Documents. Performance of Unit Price Work for undefined quantities is contingent upon conditions encountered at the site, as determined and authorized by the Professional.

Unit Price Work, Specified—Work of specified and defined quantities (i.e., quantities are detailed in, and can be taken-off from, the Contract Documents) that when performed is measured by the Professional and paid based on the measured quantities and unit prices contained in the Contract Documents.

Work (as in "the Work," "the entire Work")—The entire *completed Construction* required by the Contract Documents. The Work results from furnishing and performing all services, obligations, responsibilities, management, supervision, labor, materials, equipment, construction equipment, general conditions, permits, taxes, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, field supplies, Bonds, insurance, mobilization, close-out, overhead and all connections, devices and incidental items of any kind or nature required and/or made necessary by the Contract Documents.

Work Involved, any Work Involved—Existing or prospective Work (a) reflected in any notice, proposal or claim, or (b) reflected in changes ordered or in process, or (c) affected by Delay.

APPENDIX B
CONTRACT DRAWINGS



MICHIGAN QUADRANGLE LOCATION

SHIAWASSEE COUNTY

SCALE 1:24,000



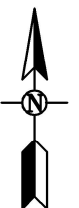
FIGURE 1

SITE LOCATION MAP

USGS, 7.5 MINUTE SERIES

OWOSSO NORTH , MI QUADRANGLE, 1974.

OWOSSO SOUTH , MI QUADRANGLE, 1972.



PROJ:
FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

THIS IS NOT A LEGAL SURVEY

VERIFY SCALE
0 2,000'

IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: CS/ES DATE: 2/2/2016

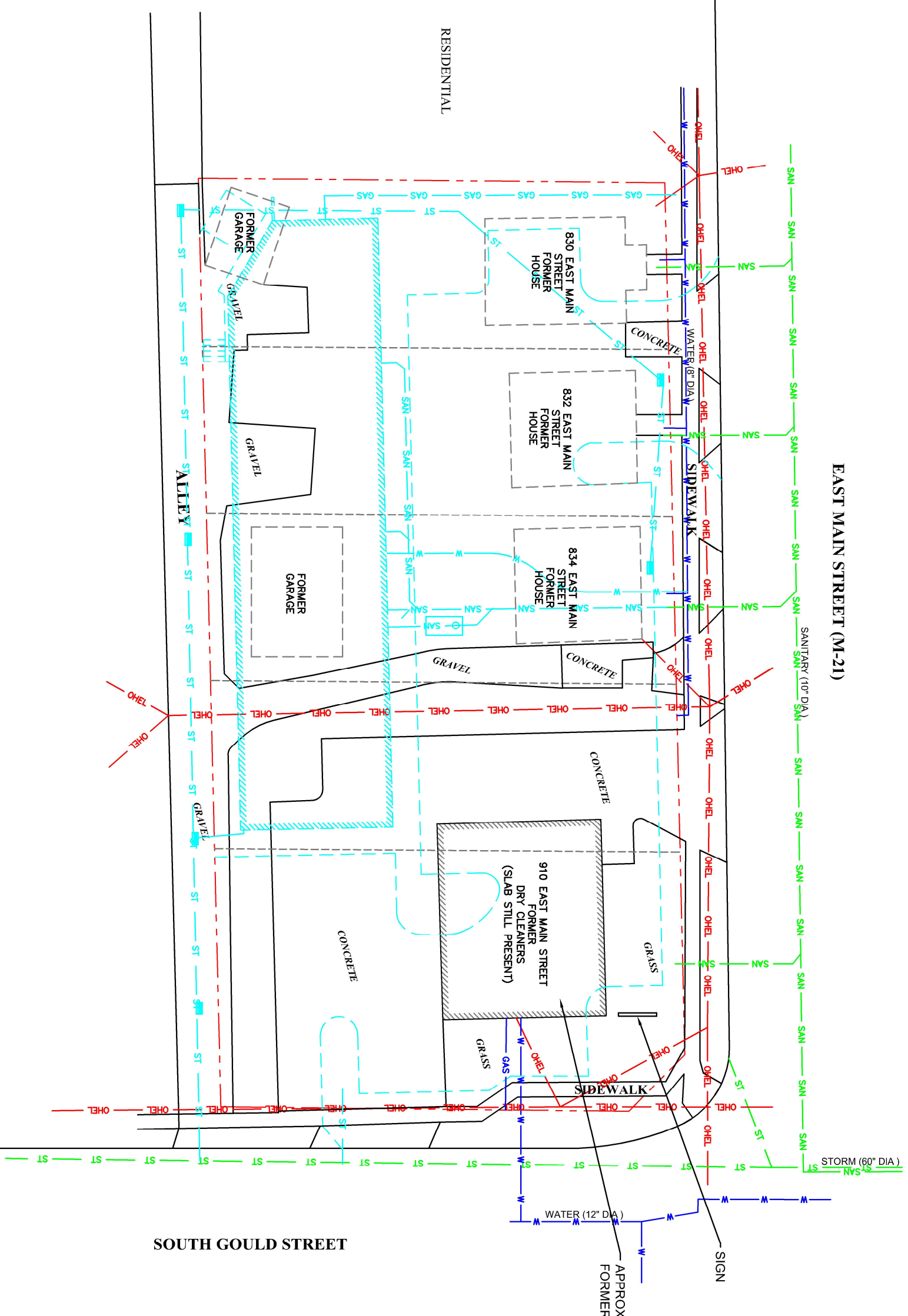
CHKD BY: AP SCALE: 1" = 2,000'

FILE NAME: 01-5363-0-004F01R00

RESIDENTIAL
 917 EAST MAIN STREET
 STECHSCHOLTE GAS & OIL

1001 EAST MAIN STREET
 WALGREEN'S PHARMACY

EAST MAIN STREET (M-21)



1002 EAST MAIN STREET
 RITE AID PHARMACY

APPROXIMATE LOCATION OF
 FORMER DRY CLEANING MACHINE

SOUTH GOULD STREET

RESIDENTIAL

RESIDENTIAL

LEGEND:

- SUBJECT PROPERTY
- - - APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- WATER
- SANITARY SEWER
- STORM SEWER
- OVERHEAD ELECTRIC LINE
- PARCEL / LOT BOUNDARIES
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GAS
- NATURAL GAS LINE
- PROPOSED STORM DRAIN



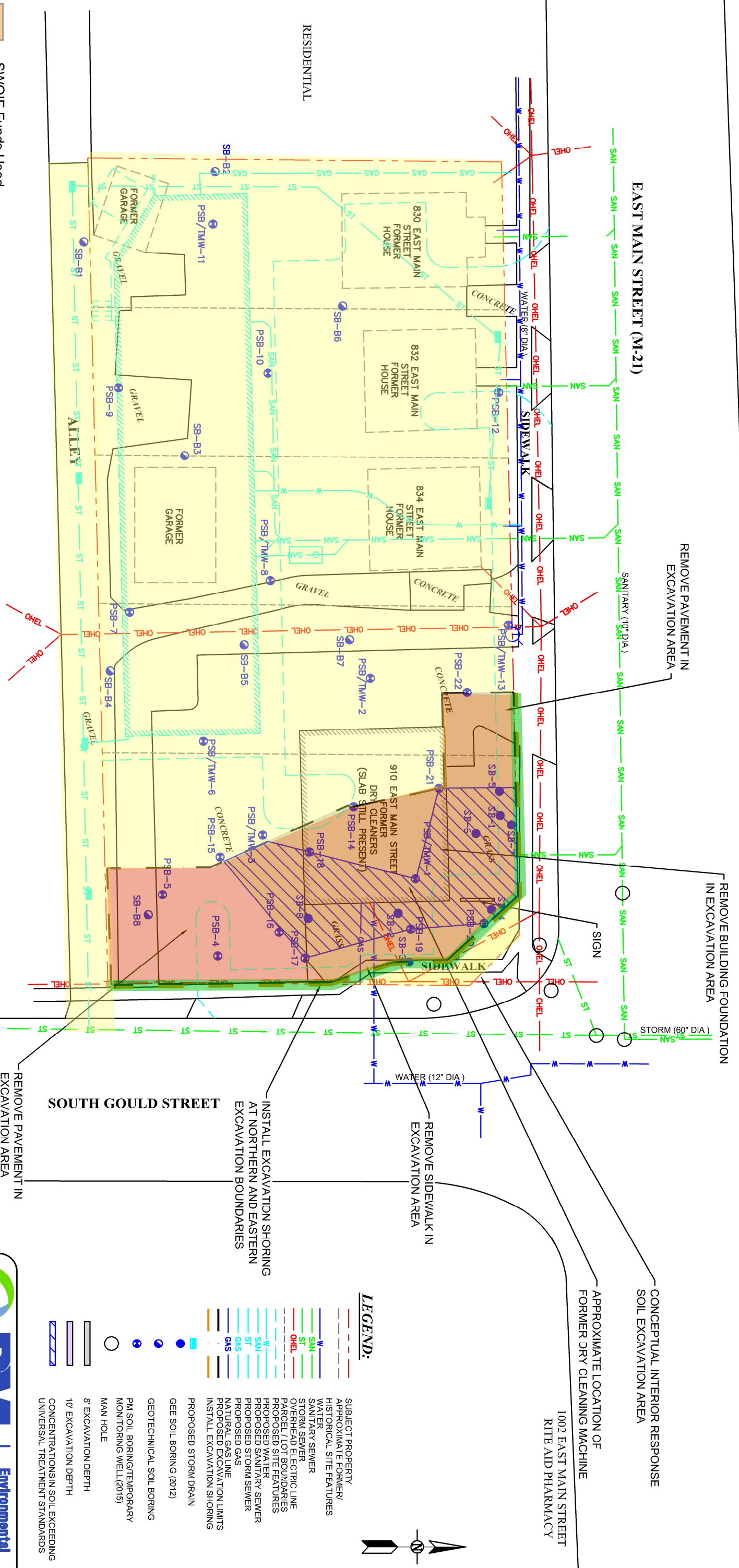
FIGURE 2
 DIAGRAM OF SITE

PROJ: FORMER EAST SIDE CLEANERS
 910 EAST MAIN STREET
 OWOSSO, MI

THIS IS NOT A LEGAL SURVEY		DRN. Bx: CS/KS/ES	DATE: 2/2/2016
VERIFY SCALE	30'	CHKD BY: AP	SCALE: 1" = 30'
FILE NAME: 01-5363-0-004F02R00		NOT TO BE USED FOR ANY PURPOSES EXCEPT AS SPECIFIED IN CONTRACT.	

RESIDENTIAL
917 EAST MAIN STREET
STECHSCHOLTE GAS & OIL

1001 EAST MAIN STREET
WALGREEN'S PHARMACY



- = SWQIF Funds Used
- = Loan Funds Used
- = Grant Funds Used

RESIDENTIAL

RESIDENTIAL

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- WATER
- SANITARY SEWER
- STORM SEWER
- OVERHEAD ELECTRIC LINE
- PARCEL/LOT BOUNDARIES
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GAS
- NATURAL GAS LINE
- PROPOSED EXCAVATION LIMITS
- INSTALL EXCAVATION SHORING
- PROPOSED STORM DRAIN
- GEE SOIL BORING (2012)
- GEOTECHNICAL SOIL BORING
- PM SOIL BORING/TEMPORARY MONITORING WELL (2015)
- MAN HOLE
- 8' EXCAVATION DEPTH
- 10' EXCAVATION DEPTH
- CONCENTRATIONS IN SOIL EXCEEDING UNIVERSAL TREATMENT STANDARDS

FIGURE 3

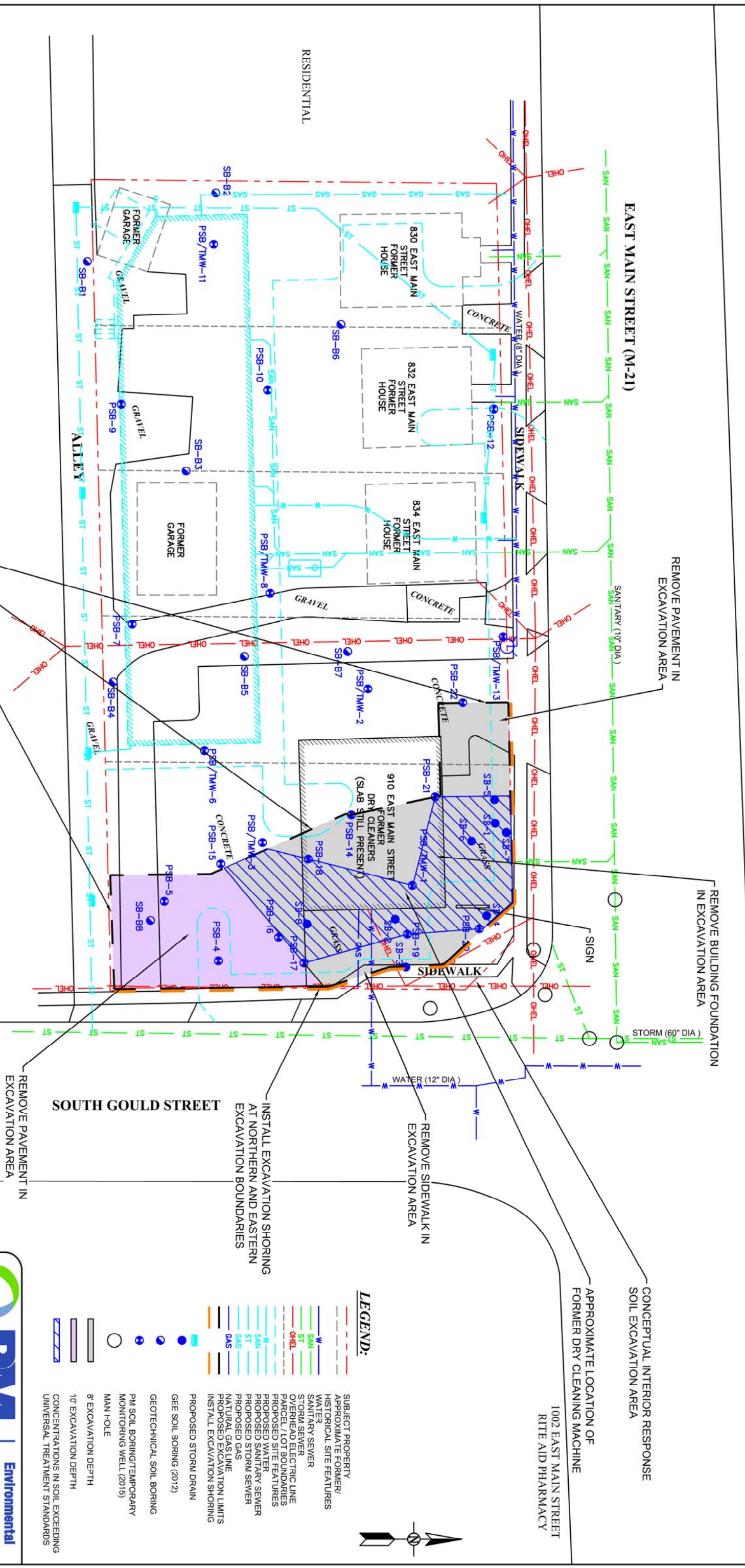
Conceptual Fund Expenditure Locations

PROJ: FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

THIS IS NOT A LEGAL SURVEY	DATE: 2/2/2016
VERIFY SCALE: 30'	SCALE: 1" = 30'
FILE NAME: 01-5363-0-004F03R01	

RESIDENTIAL
917 EAST MAIN STREET
STECHSCHOLTE GAS & OIL

1001 EAST MAIN STREET
WALGREEN'S PHARMACY



EXCAVATION WILL BE SLOPED AT 1 TO 1 RATIO
AT WEST AND SOUTH BOUNDARIES

RESIDENTIAL

RESIDENTIAL

REMOVE PAVEMENT IN
EXCAVATION AREA

SOUTH GOULD STREET

INSTALL EXCAVATION SHORING
AT NORTHERN AND EASTERN
EXCAVATION BOUNDARIES

REMOVE SIDEWALK IN
EXCAVATION AREA

REMOVE BUILDING FOUNDATION
IN EXCAVATION AREA

REMOVE PAVEMENT IN
EXCAVATION AREA

CONCEPTUAL INTERIOR RESPONSE
SOIL EXCAVATION AREA

APPROXIMATE LOCATION OF
FORMER DRY CLEANING MACHINE

1002 EAST MAIN STREET
RITE AID PHARMACY

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/ HISTORICAL SITE FEATURES
- WATER
- SANITARY SEWER
- STORM SEWER
- OVERHEAD ELECTRIC LINE
- PARCEL/LOT BOUNDARIES
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GAS
- NATURAL GAS LINE
- INSTALL EXCAVATION LIMITS
- PROPOSED EXCAVATION SHORING
- PROPOSED STORM DRAIN
- GEE SOIL BORING (2012)
- GEOTECHNICAL SOIL BORING
- PM SOIL BORING/TEMPORARY MONITORING WELL (2015)
- MAN HOLE
- 8' EXCAVATION DEPTH
- 10' EXCAVATION DEPTH
- CONCENTRATIONS IN SOIL EXCEEDING UNIVERSAL TREATMENT STANDARDS

PM Environmental & Engineering Services

FIGURE 3A
PROPOSED EXCAVATION AREA MAP

PROJ: FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

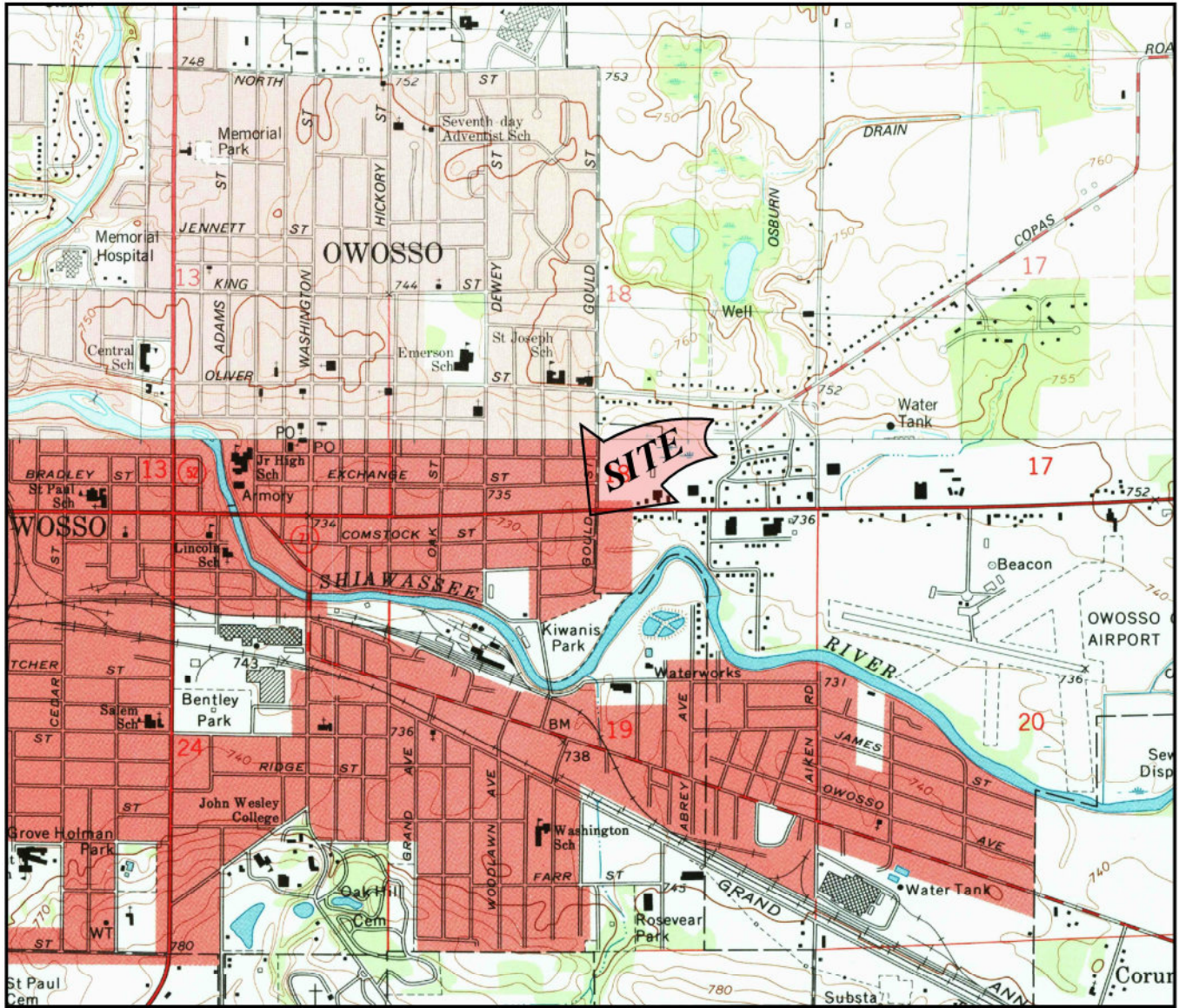
THIS IS NOT A LEGAL SURVEY		DRN. BY: ES/CS/KS/ES	DATE: 2/2/2016
VERIFY SCALE		CHKD BY: JD/AP	SCALE: 1" = 30'
IF NOT ON THIS SCALE, DIMENSIONS SHALL ACCORDINGLY.		FILE NAME: 01-5363-0-004F03R01	

APPENDIX C
SITE INFORMATION

**TABLE 2 (1 OF 1)
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
830, 832, 834, 910 EAST MAIN STREET, OWOSSO, MICHIGAN
PM PROJECT #01-5363-0-001**

VOLATILE ORGANIC COMPOUNDS, POLYNUCLEAR AROMATIC COMPOUNDS & METALS (µg/L)				Benzene	n-Butylbenzene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Ethylbenzene	n-Propylbenzene	Tetrachloroethylene	Toluene	Trichloroethylene	1,2,3-Trimethylbenzene ⁵	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride	Xylenes	Other VOCs	Naphthalene	2-Methylnaphthalene	Other PNAs	Cadmium	Chromium	Lead	
Chemical Abstract Service Number (CAS#)				71432	104518	156592	156605	100414	103651	127184	108883	79016	526738	95636	108678	75014	1330207	Various	91203	91576	Various	7440439	16065831	7439921	
Sample ID	Sample Date	Screen Depth (feet bgs)	Depth to Groundwater (feet bgs)	VOCs														PNAs			Metals				
SB-1 Water (GEE)	7/31/2012	15.0-20.0	16.0	<1	<1	200	<1	<1	<1	5,100	<1	<1	<1	<1	<1	<1	<1	<MDL	17	7	<MDL	<1	<10	<3	
TMW-1	04/29/2015	4.83-9.83	6.86	460	<10	<10	<10	30	<10	130	20	<10	10	<10	<10	<10	110	<MDL	NA	NA	NA	NA	NA	NA	
TMW-2	04/28/2015	7.12-12.12	6.63	<100	<100	800	<100	100	<100	2,400	<100	1,000	<100	100	<100	<100	300	<MDL	NA	NA	NA	NA	NA	NA	
TMW-3	04/28/2015	7.19-12.19	7.43	<100	<100	<100	<100	300	200	<100	<100	<100	200	1,100	300	<100	500	<MDL	NA	NA	NA	NA	NA	NA	
TMW-6	04/28/2015	9.68-14.68	7.02	20	10	260	<10	10	30	<10	<10	<10	<10	<10	<10	90	<30	<MDL	NA	NA	NA	NA	NA	NA	
TMW-8	04/28/2015	8.77-13.77	6.93	<50	<50	60	<50	340	110	<50	<50	<50	170	610	170	<50	700	<MDL	NA	NA	NA	NA	NA	NA	
TMW-11	04/28/2015	8.54-13.54	9.22	<1	<1	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<3	<MDL	NA	NA	NA	NA	NA	NA	
TMW-13	04/29/2015	7.63-12.63	6.83	1	<1	74	2	<1	<1	15	<1	11	<1	<1	<1	14	<3	<MDL	NA	NA	NA	NA	NA	NA	
Generic Groundwater Cleanup Criteria Table 1: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013 MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013																									
Residential/Nonresidential (µg/L)																									
Residential Drinking Water (Res DW)	5.0 (A)	80	70 (A)	100 (A)	74 (E)	80	5.0 (A)	790 (E)	5.0 (A)	63 (E)	63 (E)	72 (E)	2.0 (A)	280 (E)	Various	520	260	Various	5.0 (A)	100 (A)	4.0 (L)				
Residential Health Based Drinking Water Values	NL	NL	NL	NL	700 (E)	NL	NL	1,000 (E)	NL	NL	1,000 (E)	1,000 (E)	NL	10,000 (E)	Various	NL	NL	Various	NL	NL	NL				
Nonresidential Drinking Water (Nonres DW)	5.0 (A)	230	70 (A)	100 (A)	74 (E)	230	5.0 (A)	790 (E)	5.0 (A)	63 (E)	63 (E)	72 (E)	2.0 (A)	280 (E)	Various	1,500	750	Various	5.0 (A)	100 (A)	4.0 (L)				
Nonresidential Health Based Drinking Water Values	NL	NL	NL	NL	700 (E)	NL	NL	1,000 (E)	NL	NL	2,900 (E)	2,900 (E)	NL	10,000 (E)	Various	NL	NL	Various	NL	NL	NL				
Groundwater Surface Water Interface (GSI)	200 (X)	ID	620	1,500 (X)	18	ID	60 (X)	270	200 (X)	17	17	45	13 (X)	41	Various	11	19	Various	{G,X}	11	{G,X}				
Residential Groundwater Volatilization to Indoor Air Inhalation (Res GVII) ²	5,600	ID	93,000	85,000	1.10E+05	ID	25,000	5.3E+5 (S)	2,200	56,000 (S)	56,000 (S)	61,000 (S)	1,100	1.9E+5 (S)	Various	31,000 (S)	25,000 (S)	Various	NLV	NLV	NLV				
Nonresidential Groundwater Volatilization to Indoor Air Inhalation (Nonres GVII) ²	35,000	ID	2.10E+05	2.00E+05	1.7E+5 (S)	ID	1.70E+05	5.3E+5 (S)	4,900	56,000 (S)	56,000 (S)	61,000 (S)	13,000	1.9E+5 (S)	Various	31,000 (S)	25,000 (S)	Various	NLV	NLV	NLV				
Screening Levels (µg/L)																									
Residential Groundwater Vapor Intrusion Screening Levels (GW_{VI-res}) ³	27	91	83	360	700	92	94	36,000	9.8	2,400	1,700	1200	2.8	10,000	Various	240	9.40E+02	Various	NL	NL	NL				
Nonresidential Groundwater Vapor Intrusion Screening Levels (GW_{VI-nr}) ³	140	380	350	1,500	2,600	390	460	1.50E+05	41	10,000	7,300	5,100	52	10,000	Various	1,200	3.9E+03	Various	NL	NL	NL				
Residential Vapor Intrusion Shallow Groundwater Screening Levels (GW_{VI-sump-res}) ⁴	5.0	1.0	70	100	700	1.0	5.0	1,000	5.0	5.0	1.7	1.2	2.0	10,000	Various	5.0	5	Various	NL	NL	NL				
Nonresidential Vapor Intrusion Shallow Groundwater Screening Levels (GW_{VI-sump-nr}) ⁴	5.0	1.0	70	100	700	1.0	5.0	1,000	5.0	10	7.3	5.1	2.0	10,000	Various	5.0	5	Various	NL	NL	NL				
Water Solubility	1.75E+06	NA	3.50E+06	6.30E+06	1.69E+05	NA	2.00E+05	5.26E+05	1.10E+06	56,000	56,000	61,000	2.76E+06	1.86E+05	Various	31,000	25000	Various	NA	NA	NA				
Flammability and Explosivity Screening Level	68,000	ID	5.30E+05	2.30E+05	43,000	ID	ID	61,000	ID	56,000 (S)	56,000 (S)	ID	33,000	70,000	Various	NA	ID	Various	ID	ID	ID				
Acute Vapor Intrusion Screening Levels for Groundwater (µg/L)																									
IRASL Groundwater (AGW_{VI})	11,000	NL	6.4E+06	4,000	NL	NL	5.2E+04	2.6E+05	2.0E+06	NL	NL	NL	3.0E+05	1.5E+05	Various	NL	NL	Various	NL	NL	NL				
IRASL Groundwater In Contact With Structure (AGW_{VI-sump})	11	NL	6,400	4.0	NL	NL	53	260	2,000	NL	NL	NL	300	150	Various	NL	NL	Various	NL	NL	NL				

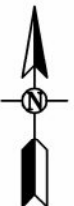
- Applicable Criteria/RBSL Exceeded
- BOLD** Value Exceeds Applicable Criteria
- Nonresidential VISL Exceeded
- bgs Below Ground Surface (feet)
- ND Not detected at levels above the laboratory Method Detection Limit (MDL) or Minimum Quantitative Level (MQL)
- ¹ Rule 323.1057 of Part 4 Water Quality Standards
- ² Tier 1 GVII Criteria based on 3 meter (or greater) groundwater depth
- ³ (2013 Vapor Intrusion Guidance) Screening Levels based on depth to groundwater less than 1.5 meters and not in contact with building foundation
- ⁴ (2013 Vapor Intrusion Guidance) Screening levels based on groundwater in contact with the building foundation or within a sump
- ⁵ 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- NA Not Applicable
- NL Not Listed
- NLL Not Likely to Leach
- NLV Not Likely to Volatilize
- ID Insufficient Data



SHIAWASSEE COUNTY



FIGURE 1
SITE LOCATION MAP
 USGS, 7.5 MINUTE SERIES
 OWOSSO NORTH , MI QUADRANGLE, 1974.
 OWOSSO SOUTH , MI QUADRANGLE, 1972.



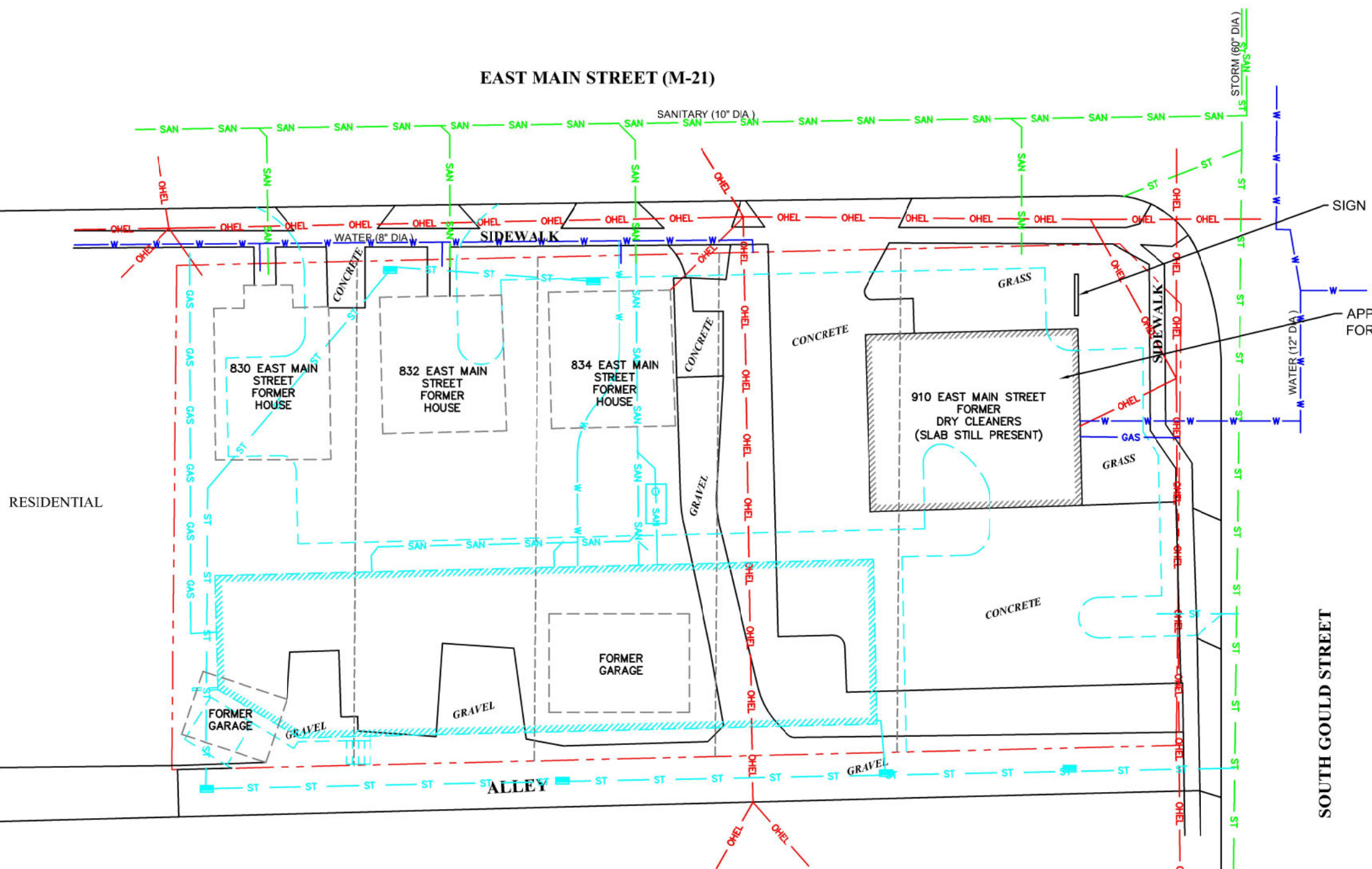
RESIDENTIAL

917 EAST MAIN STREET
STECHSCHOLTE GAS & OIL

1001 EAST MAIN STREET
WALGREEN'S PHARMACY

EAST MAIN STREET (M-21)

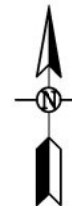
1002 EAST MAIN STREET
RITE AID PHARMACY



SIGN

APPROXIMATE LOCATION OF
FORMER DRY CLEANING MACHINE

RESIDENTIAL



LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- WATER
- SANITARY SEWER
- STORM SEWER
- OVERHEAD ELECTRIC LINE
- PARCEL / LOT BOUNDARIES
- PROPOSED SITE FEATURES
- PROPOSED WATER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GAS
- NATURAL GAS LINE
- PROPOSED STORM DRAIN

SOUTH GOULD STREET

RESIDENTIAL

RESIDENTIAL



FIGURE 2
DIAGRAM OF SITE

PROJ: FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

THIS IS NOT A LEGAL SURVEY	DRN. BY: CS/KS/ES	DATE: 2/2/2016
VERIFY SCALE	CHKD BY: AP	SCALE: 1" = 30'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.		
FILE NAME: 01-5363-0-004F02R00		

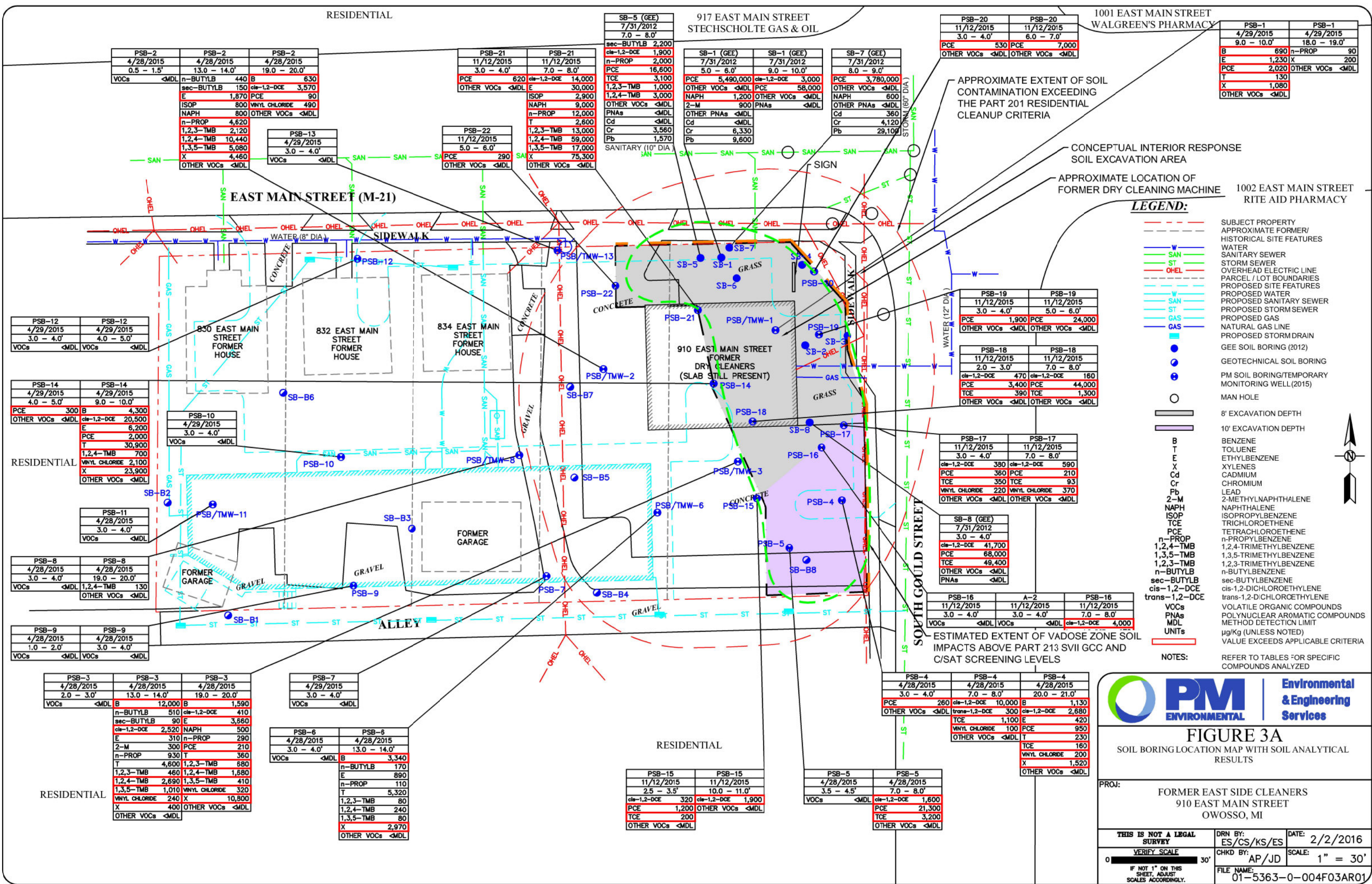


FIGURE 3A
SOIL BORING LOCATION MAP WITH SOIL ANALYTICAL RESULTS

PROJ: FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

THIS IS NOT A LEGAL SURVEY
VERIFY SCALE
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: ES/CS/KS/ES
CHKD BY: AP/JD
FILE NAME: 01-5363-0-004F03AR01

DATE: 2/2/2016
SCALE: 1" = 30'

LEGEND:

- SUBJECT PROPERTY
- - - APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- W WATER
- SAN SANITARY SEWER
- ST STORM SEWER
- OHEL OVERHEAD ELECTRIC LINE
- PARCEL / LOT BOUNDARIES
- PROPOSED SITE FEATURES
- W PROPOSED WATER
- SAN PROPOSED SANITARY SEWER
- ST PROPOSED STORMSEWER
- GAS PROPOSED GAS
- GAS NATURAL GAS LINE
- PROPOSED STORM DRAIN
- GEE SOIL BORING (2012)
- GEOTECHNICAL SOIL BORING
- PM SOIL BORING/TEMPORARY MONITORING WELL (2015)
- MAN HOLE
- 8' EXCAVATION DEPTH
- 10' EXCAVATION DEPTH
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X XYLENES
- Cd CADMIUM
- Cr CHROMIUM
- Pb LEAD
- 2-M 2-METHYLNAPHTHALENE
- NAPH NAPHTHALENE
- ISOP ISOPROPYLBENZENE
- TCE TRICHLOROETHENE
- PCE TETRACHLOROETHENE
- n-PROP n-PROPYLBENZENE
- 1,2,4-TMB 1,2,4-TRIMETHYLBENZENE
- 1,3,5-TMB 1,3,5-TRIMETHYLBENZENE
- 1,2,3-TMB 1,2,3-TRIMETHYLBENZENE
- n-BUTYLB n-BUTYLBENZENE
- sec-BUTYLB sec-BUTYLBENZENE
- cis-1,2-DCE cis-1,2-DICHLOROETHYLENE
- trans-1,2-DCE trans-1,2-DICHLOROETHYLENE
- VOCs VOLATILE ORGANIC COMPOUNDS
- PNA POLYNUCLEAR AROMATIC COMPOUNDS
- MDL METHOD DETECTION LIMIT
- UNITS μg/Kg (UNLESS NOTED)
- VALUE EXCEEDS APPLICABLE CRITERIA

NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

PSB-20 11/12/2015 3.0 - 4.0'	PSB-20 11/12/2015 6.0 - 7.0'
PCE 530	PCE 7,000
OTHER VOCs <MDL	OTHER VOCs <MDL

APPROXIMATE EXTENT OF SOIL CONTAMINATION EXCEEDING THE PART 201 RESIDENTIAL CLEANUP CRITERIA

CONCEPTUAL INTERIOR RESPONSE SOIL EXCAVATION AREA

APPROXIMATE LOCATION OF FORMER DRY CLEANING MACHINE

ESTIMATED EXTENT OF VADOSE ZONE SOIL IMPACTS ABOVE PART 213 SVII GCC AND C/SAT SCREENING LEVELS

PSB-4 4/28/2015 3.0 - 4.0'	PSB-4 4/28/2015 7.0 - 8.0'	PSB-4 4/28/2015 20.0 - 21.0'
PCE 260	cis-1,2-DCE 10,000	B 1,130
OTHER VOCs <MDL	trans-1,2-DCE 300	cis-1,2-DCE 2,680
	TCE 1,100	E 420
	VINYL CHLORIDE 100	PCE 950
	OTHER VOCs <MDL	T 230
		TCE 160
		VINYL CHLORIDE 200
		X 1,520
		OTHER VOCs <MDL

PSB-15 11/12/2015 2.5 - 3.5'	PSB-15 11/12/2015 10.0 - 11.0'
cis-1,2-DCE 320	cis-1,2-DCE 1,900
PCE 1,200	OTHER VOCs <MDL
TCE 200	
OTHER VOCs <MDL	

PSB-5 4/28/2015 3.5 - 4.5'	PSB-5 4/28/2015 7.0 - 8.0'
VOCs <MDL	cis-1,2-DCE 1,600
	PCE 21,300
	TCE 3,200
	OTHER VOCs <MDL

PSB-3 4/28/2015 2.0 - 3.0'	PSB-3 4/28/2015 13.0 - 14.0'	PSB-3 4/28/2015 19.0 - 20.0'
VOCs <MDL	B 12,000	B 1,590
	n-BUTYLB 510	cis-1,2-DCE 410
	sec-BUTYLB 90	E 3,660
	cis-1,2-DCE 2,520	NAPH 500
	E 310	n-PROP 290
	2-M 300	PCE 210
	n-PROP 930	T 360
	T 4,600	1,2,3-TMB 680
	1,2,3-TMB 460	1,2,4-TMB 1,680
	1,2,4-TMB 2,690	1,3,5-TMB 410
	1,3,5-TMB 1,010	VINYL CHLORIDE 320
	VINYL CHLORIDE 240	X 10,800
	X 400	OTHER VOCs <MDL
	OTHER VOCs <MDL	

PSB-6 4/28/2015 3.0 - 4.0'	PSB-6 4/28/2015 13.0 - 14.0'
VOCs <MDL	B 3,340
	n-BUTYLB 170
	E 890
	n-PROP 110
	T 5,320
	1,2,3-TMB 80
	1,2,4-TMB 240
	1,3,5-TMB 80
	X 2,970
	OTHER VOCs <MDL

PSB-12 4/29/2015 3.0 - 4.0'	PSB-12 4/29/2015 4.0 - 5.0'
VOCs <MDL	VOCs <MDL

PSB-14 4/29/2015 4.0 - 5.0'	PSB-14 4/29/2015 9.0 - 10.0'
PCE 300	B 4,300
OTHER VOCs <MDL	cis-1,2-DCE 20,500
	E 6,200
	PCE 2,000
	T 30,900
	1,2,4-TMB 700
	VINYL CHLORIDE 2,100
	X 23,900
	OTHER VOCs <MDL

PSB-8 4/28/2015 3.0 - 4.0'	PSB-8 4/28/2015 19.0 - 20.0'
VOCs <MDL	1,2,4-TMB 130
	OTHER VOCs <MDL

PSB-9 4/28/2015 1.0 - 2.0'	PSB-9 4/28/2015 3.0 - 4.0'
VOCs <MDL	VOCs <MDL

PSB-10 4/29/2015 3.0 - 4.0'	VOCs <MDL
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PSB-11 4/28/2015 3.0 - 4.0'	VOCs <MDL
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PSB-13 4/29/2015 3.0 - 4.0'	VOCs <MDL
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PSB-21 11/12/2015 3.0 - 4.0'	PSB-21 11/12/2015 7.0 - 8.0'
PCE 620	cis-1,2-DCE 14,000
OTHER VOCs <MDL	E 30,000
	ISOP 2,900
	NAPH 9,000
	n-PROP 12,000
	T 2,600
	1,2,3-TMB 13,000
	1,2,4-TMB 59,000
	1,3,5-TMB 17,000
	X 75,300
	OTHER VOCs <MDL

PSB-22 11/12/2015 5.0 - 6.0'	PCE 290
OTHER VOCs <MDL	

PSB-5 (GEE) 7/31/2012 7.0 - 8.0'	sec-BUTYLB 2,200
	cis-1,2-DCE 1,900
	n-PROP 2,000
	PCE 16,600
	TCE 3,100
	1,2,3-TMB 1,000
	1,2,4-TMB 3,000
	OTHER VOCs <MDL
	PNA 900
	OTHER PNA 900
	Cd <MDL
	Cr 4,120
	Pb 29,100

PSB-1 (GEE) 7/31/2012 5.0 - 8.0'	PSB-1 (GEE) 7/31/2012 9.0 - 10.0'
PCE 5,490,000	cis-1,2-DCE 3,000
OTHER VOCs <MDL	PCE 58,000
NAPH 1,200	OTHER VOCs <MDL
2-M 900	PNA 900
OTHER PNA 900	OTHER PNA 900
Cd <MDL	Cd 360
Cr <MDL	Cr 4,120
Pb 9,600	Pb 29,100

PSB-7 (GEE) 7/31/2012 8.0 - 9.0'	PCE 3,780,000
OTHER VOCs <MDL	OTHER VOCs <MDL
NAPH 600	OTHER PNA 900
OTHER PNA 900	Cd 360
Cd 360	Cr 4,120
Cr 4,120	Pb 29,100
Pb 29,100	

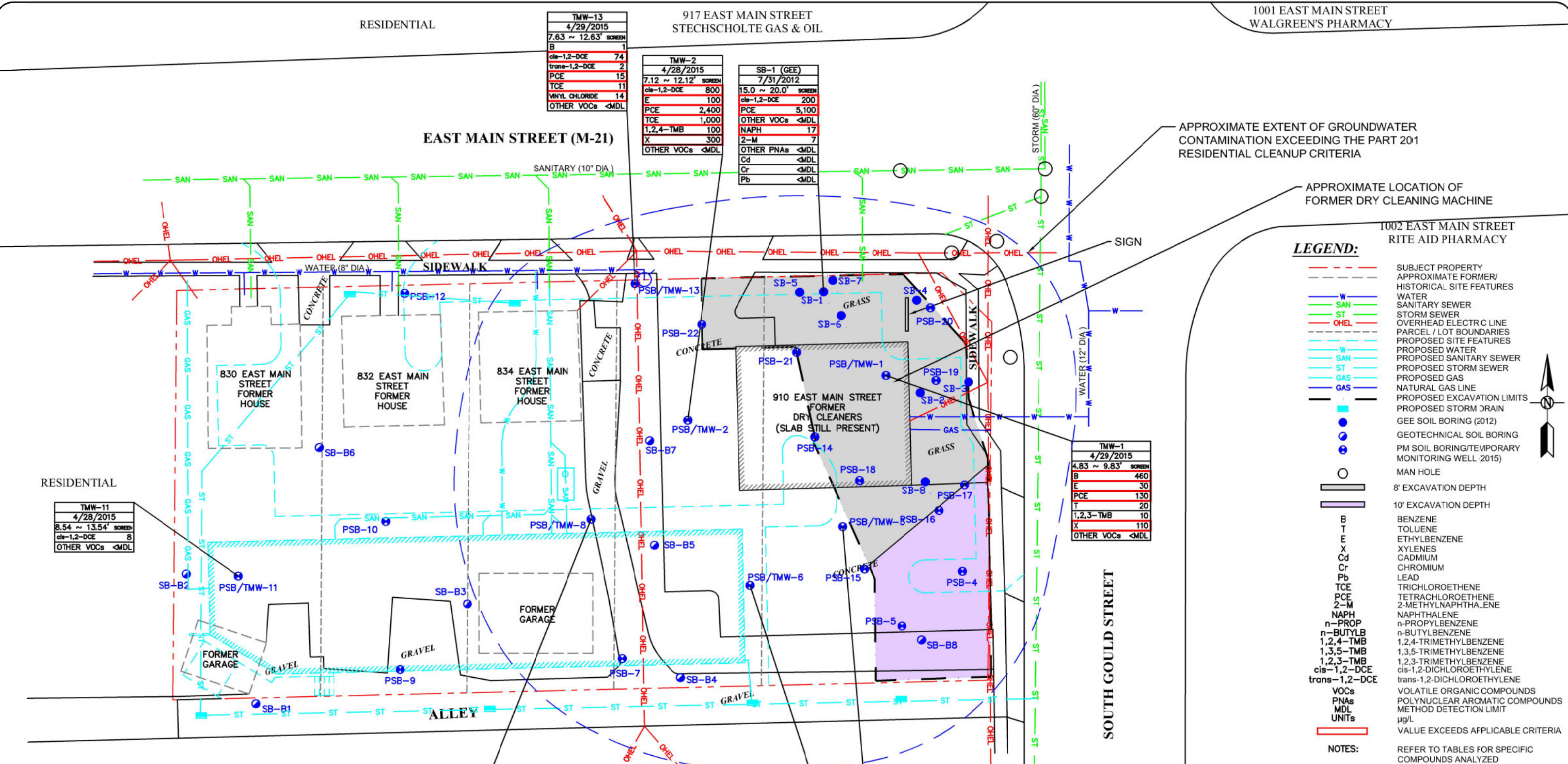
PSB-19 11/12/2015 3.0 - 4.0'	PSB-19 11/12/2015 5.0 - 6.0'
PCE 1,900	PCE 24,000
OTHER VOCs <MDL	OTHER VOCs <MDL

PSB-18 11/12/2015 2.0 - 3.0'	PSB-18 11/12/2015 7.0 - 8.0'
cis-1,2-DCE 470	cis-1,2-DCE 160
PCE 3,400	PCE 44,000
TCE 390	TCE 1,300
OTHER VOCs <MDL	OTHER VOCs <MDL

PSB-17 11/12/2015 3.0 - 4.0'	PSB-17 11/12/2015 7.0 - 8.0'
cis-1,2-DCE 380	cis-1,2-DCE 590
PCE 360	PCE 210
TCE 350	TCE 93
VINYL CHLORIDE 220	VINYL CHLORIDE 370
OTHER VOCs <MDL	OTHER VOCs <MDL

PSB-8 (GEE) 7/31/2012 3.0 - 4.0'	cis-1,2-DCE 41,700
	PCE 68,000
	TCE 49,400
	OTHER VOCs <MDL
	PNA 900

PSB-16 11/12/2015 3.0 - 4.0'	PSB-16 11/12/2015 7.0 - 8.0'
VOCs <MDL	VOCs <MDL
	cis-1,2-DCE 4,000



TMW-13	
4/29/2015	
7.63 ~ 12.63' SCREEN	
B	1
cis-1,2-DCE	74
trans-1,2-DCE	2
PCE	15
TCE	11
VNYL CHLORIDE	14
OTHER VOCs	<MDL

TMW-2	
4/28/2015	
7.12 ~ 12.12' SCREEN	
cis-1,2-DCE	800
E	100
PCE	2,400
TCE	1,000
1,2,4-TMB	100
X	300
OTHER VOCs	<MDL

SB-1 (GEE)	
7/31/2012	
15.0 ~ 20.0' SCREEN	
cis-1,2-DCE	200
PCE	5,100
OTHER VOCs	<MDL
NAPH	17
2-M	7
OTHER PNAS	<MDL
Cd	<MDL
Cr	<MDL
Pb	<MDL

TMW-1	
4/29/2015	
4.83 ~ 9.83' SCREEN	
B	460
E	30
PCE	130
T	20
1,2,3-TMB	10
X	110
OTHER VOCs	<MDL

TMW-8	
4/28/2015	
8.77 ~ 13.77' SCREEN	
cis-1,2-DCE	60
E	340
n-PROP	110
1,2,3-TMB	170
1,2,4-TMB	610
1,3,5-TMB	170
X	700
OTHER VOCs	<MDL

TMW-6	
4/28/2015	
9.68 ~ 14.68' SCREEN	
B	20
n-BUTYLB	10
cis-1,2-DCE	260
E	10
n-PROP	30
VNYL CHLORIDE	90
OTHER VOCs	<MDL

TMW-3	
4/28/2015	
7.19 ~ 12.19' SCREEN	
E	300
n-PROP	200
1,2,3-TMB	200
1,2,4-TMB	1,100
1,3,5-TMB	300
X	500
OTHER VOCs	<MDL

LEGEND:

- SUBJECT PROPERTY
- APPROXIMATE FORMER/HISTORICAL SITE FEATURES
- W WATER
- SAN SANITARY SEWER
- ST STORM SEWER
- OHEL OVERHEAD ELECTRIC LINE
- PARCEL / LOT BOUNDARIES
- PROPOSED SITE FEATURES
- W PROPOSED WATER
- SAN PROPOSED SANITARY SEWER
- ST PROPOSED STORM SEWER
- GAS PROPOSED GAS
- NATURAL GAS LINE
- PROPOSED EXCAVATION LIMITS
- PROPOSED STORM DRAIN
- GEE SOIL BORING (2012)
- GEOTECHNICAL SOL BORING
- PM SOIL BORING/TEMPORARY MONITORING WELL (2015)
- MAN HOLE
- 8' EXCAVATION DEPTH
- 10' EXCAVATION DEPTH
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X XYLENES
- Cd CADMIUM
- Cr CHROMIUM
- Pb LEAD
- TCE TRICHLOROETHENE
- PCE TETRACHLOROETHENE
- 2-M 2-METHYLNAPHTHALENE
- NAPH NAPHTHALENE
- n-PROP n-PROPYLBENZENE
- n-BUTYLB n-BUTYLBENZENE
- 1,2,4-TMB 1,2,4-TRIMETHYLBENZENE
- 1,3,5-TMB 1,3,5-TRIMETHYLBENZENE
- 1,2,3-TMB 1,2,3-TRIMETHYLBENZENE
- cis-1,2-DCE cis-1,2-DICHLOROETHYLENE
- trans-1,2-DCE trans-1,2-DICHLOROETHYLENE
- VOCs VOLATILE ORGANIC COMPOUNDS
- PNAs POLYNUCLEAR AROMATIC COMPOUNDS
- MDL METHOD DETECTION LIMIT
- UNITS μg/L
- VALUE EXCEEDS APPLICABLE CRITERIA

NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED



FIGURE 4A
SOIL BORING/TEMPORARY MONITORING WELL
LOCATION MAP WITH GROUNDWATER
ANALYTICAL RESULTS

PROJ: FORMER EAST SIDE CLEANERS
910 EAST MAIN STREET
OWOSSO, MI

THIS IS NOT A LEGAL SURVEY	DRN. BY: CS/KS/ES	DATE: 2/2/2016
VERIFY SCALE	CHKD BY: AP/JD	SCALE: 1" = 30'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.		
FILE NAME: 01-5363-0-004F04AR01		



Well Log .

Project No.: 01-5363-0-001
Project Name: Commercial Property
Facility ID#:
Logged By: KL

Well No.: PSB/TMW-1
Date Drilled: 4/29/2015
Drill Rig: 6712 DT
Sampling Method: 2.125" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				
0		CONCRETE		-	5.7	
0		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	4.8	
2		SP- (Loose) SAND (moist) Brown, medium fine		-	1.2	
4				-	0.8	
4				-	0.6	
6				-	2.7	
6				-	14.8	
8		SP- (Loose) SAND (saturated) Brown, medium fine		-	26.3	
8				-	17.1	
10		CL- (Medium Soft) SILTY CLAY (moist) Gray	SS-1 9.0 - 10.0'	-	8.6	
12		CL- (Medium Stiff) CLAY (moist) Gray, trace gravel		-	6.2	
12				-	3.4	
14				-	1.7	
14				-	0.9	
16		GW- (Loose) GRAVELLY SAND (saturated) Gray, medium coarse		-	0.4	
16				-	0.2	
18				-	0.0	
18		CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 18.0 - 19.0'	-	0.0	
20				-	0.0	

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-2

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				<p>1" PVC Casing</p> <p>1" 10-Slot PVC Screen</p> <p>Ground Surface</p> <p>7.12'</p> <p>Approximate Water Level (6.8')</p> <p>12.12'</p>
0	CONCRETE			-	10.1	
0.5	SP- (Loose) SAND (moist)	Brown, medium fine	SS-1 0.5 - 1.5'	-	4.8	
2	CL- (Stiff) CLAY (moist)	Brown, trace gravel		-	5.3	
4				-	2.6	
4				-	1.0	
6				-	0.9	
6	CL- (Medium Stiff) SILTY CLAY (moist)	Brown		-	0.6	
8				-	2.5	
8	SP- (Loose) SAND (saturated)	Gray, medium fine		-	41.9	
10				-	1072	
10				-	1375	
12				-	1146	
12				-	576	
14	CL- (Stiff) CLAY (moist)	Gray, trace gravel		-	181	
14				-	94.6	
16				-	16.7	
16				-	9.3	
18				-	4.7	
18				-	2.9	
20			SS-2 19.0 - 20.0'	-	1.6	

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-3

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				<p>1" PVC Casing</p> <p>Ground Surface</p> <p>Approximate Water Level (7.43')</p> <p>1" 10-Slot PVC Screen</p> <p>7.19'</p> <p>12.19'</p>
0		CONCRETE		-	10.1	
0		GW- (Loose) GRAVELLY SAND (moist)		-	4.8	
2		Brown, medium coarse	SS-1	-	5.3	
2		CL- (Medium Stiff) SANDY CLAY (moist)	2.0 - 3.0'	-	2.6	
4		Brown/Gray		-	1.0	
4		CL- (Stiff) CLAY (moist)		-	0.9	
6		Gray, trace gravel		-	0.6	
6		SP- (Loose) SAND (saturated)		-	2.5	
8		Gray, medium fine		-	41.9	
8		CL- (Medium Soft) SILTY CLAY (moist)		-	1072	
10				-	1375	
10		CL- (Medium Soft) SILTY CLAY (moist)		-	1146	
12		Gray		-	576	
12		GW- (Loose) GRAVELLY SAND (saturated)	SS-2	-	181	
14		Gray, medium coarse	13.0 - 14.0'	-	94.6	
14		CL- (Stiff) CLAY (moist)		-	16.7	
16		Gray, trace gravel		-	9.3	
16		CL- (Stiff) CLAY (moist)		-	4.7	
18				-	2.9	
18		CL- (Stiff) CLAY (moist)		-	1.6	
20			SS-3	-	1.6	
20			19.0 - 20.0'			

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Boring Log .

Project No.: 01-5363-0-001
Project Name: Commercial Property
Facility ID#:
Logged By: KL

Boring No.: PSB-4
Date Drilled: 4/28/2015
Drill Rig: 6712 DT
Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
	CONCRETE			-	0.0	
2	GW- (Loose) GRAVELLY SAND (moist)	Brown, medium coarse		-	0.0	
4	CL- (Stiff) CLAY (moist)	Gray, trace gravel	SS-1 3.0 - 4.0'	-	0.0	
6	CL- (Medium Soft) CLAY (moist)	Gray		-	0.4	
8	CL- (Stiff) CLAY (moist)	Gray	SS-2 7.0 - 8.0'	-	1.4	
10	SP- (Loose) SAND (saturated)	Gray, medium fine		-	5.6	
12				-	8.7	
14	CL- (Stiff) CLAY (moist)	Gray, trace gravel		-	6.2	
16				-	4.6	
18				-	2.8	
20			SS-3 20.0 - 21.0'	-	2.1	
22				-	0.7	
24			SS-4 24.0 - 25.0'	-	0.0	
26				-	0.0	

Completion Notes: EOB @ 25' bgs. Hole filled with bentonite and soil cuttings.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-5

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
0		CONCRETE		-	0.0	
0		GW- (Loose) GRAVELLY SAND (moist) Brown, medium coarse		-	0.0	
2		CL- (Medium Stiff) SANDY CLAY (moist) Gray/Brown	SS-1	-	0.0	
4		CL- (Stiff) CLAY (moist) Brown/Gray, trace gravel	3.5 - 4.5'	-	0.5	
6				-	2.3	
8				-	3.4	
8			SS-2 7.0 - 8.0'	-	0.9	
10		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
12				-	0.0	
12		SP- (Loose) SAND (saturated) Gray, medium fine		-	0.0	
14				-	0.0	
14		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
16				-	0.0	
18				-	0.0	
20			SS-3 19.0 - 20.0'	-	0.0	

Completion Notes: EOB @ 25' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-6

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				
0		CONCRETE		-	0.0	
0		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.0	
2		CL- (Stiff) CLAY (moist) Brown, trace gravel		-	0.0	
4			SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
6		SP- (Loose) SAND (saturated) Brown, medium fine		-	0.0	
6				-	0.0	
8		CL- (Medium Stiff) CLAY (moist) Gray, trace silt		-	0.0	
8				-	0.0	
10		GW- (Loose) GRAVELLY SAND (saturated) Gray, medium coarse		-	1.5	
10				-	11.6	
12				-	23.3	
14		CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 13.0 - 14.0'	-	896	
14				-	192	
16				-	161	
16				-	76.2	
18				-	31.7	
18				-	194.	
20			SS-3 19.0 - 20.0'	-	12.7	
20				-		

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

1. The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
2. Boring backfilled with natural soils unless otherwise noted



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-7

Project Name: Commercial Property

Date Drilled: 4/29/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS/GRAVEL		-	0.0	
		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.0	
2				-	0.0	
		CL- (Medium Soft) SANDY CLAY (moist) Brown	SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
				-	0.0	
6				-	0.0	
		GW- (Loose) GRAVELLY SAND (moist) Brown, medium coarse		-	0.0	
8		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
			SS-2 9.0 - 10.0'	-	0.0	
10						

Completion Notes: EOB @ 10' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-8

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				
0		GRASS/TOPSOIL		-	0.0	
0		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.0	
2		SP- (Loose) SAND (moist) Brown, fine		-	0.0	
4		CL- (Medium Stiff) CLAY (moist) Brown/Gray, trace gravel	SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
6				-	0.0	
6				-	0.0	
8				-	0.0	
8				-	0.0	
10		SP- (Loose) SAND (saturated) Gray, medium fine		-	8.7	
10				-	864	
12				-	338	
12				-	78.2	
14		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	86.2	
14				-	13.4	
16				-	7.6	
16				-	5.7	
18				-	4.9	
18				-	3.6	
20			SS-2 19.0 - 20.0'	-	2.1	

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-9

Project Name: Commercial Property

Date Drilled: 4/29/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRAVEL		-	0.1	
		SC- (Medium Dense) CLAYEY SAND (moist) Gray, fine	SS-1 1.0 - 2.0'	-	2.5	
				-	0.2	
		CL- (Stiff) SANDY CLAY (moist) Brown, trace gravel	SS-2 3.0 - 4.0'	-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
		SP- (Loose) SAND (saturated) Gray/Brown, medium fine		-	0.0	
				-	0.0	
10						

Completion Notes: EOB @ 10' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-10

Project Name: Commercial Property

Date Drilled: 4/29/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS/TOPSOIL		-	0.0	
		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.0	
2		SP- (Loose) SAND (moist) Brown, medium fine		-	0.0	
		CL- (Stiff) CLAY (moist) Brown, trace gravel	SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
				-	0.0	
6				-	0.0	
		SP- (Loose) SAND (saturated) Brown, medium fine		-	0.0	
8				-	0.0	
		CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 9.0 - 10.0'	-	0.0	
10						

Completion Notes: EOB @ 10' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-11

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				<p>1" PVC Casing</p> <p>Ground Surface</p> <p>8.54'</p> <p>Approximate Water Level (9.22')</p> <p>1" 10-Slot PVC Screen</p> <p>13.54'</p>
0		GRASS/TOPSOIL		-	0.0	
0		SC- (Medium Dense) CLAYEY SAND (moist) Brown/Gray, fine		-	0.0	
2		SP- (Loose) SAND (moist) Brown, medium fine		-	0.0	
4			SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
6		CL- (Medium Stiff) CLAY (moist) Brown, trace gravel	SS-2 5.0 - 6.0'	-	0.0	
6		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
8				-	0.0	
8				-	0.0	
10				-	0.0	
10				-	0.0	
12		SP -(Loose) SAND (saturated) Gray, medium fine		-	0.0	
12				-	0.0	
14		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
14				-	0.0	
16				-	0.0	
16				-	0.0	
18				-	0.0	
18				-	0.0	
20				-	0.0	

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-12

Project Name: Commercial Property

Date Drilled: 4/29/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS/TOPSOIL				
		SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.1	
2				-	2.5	
		SP- (Loose) SAND (moist) Brown, medium fine		-	0.2	
4			SS-1 3.0 - 4.0'	-	0.0	
		CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 4.0 - 5.0'	-	0.0	
6				-	0.0	
				-	0.0	
8				-	0.0	
				-	0.0	
10			SS-3 9.0 - 10.0'	-	0.0	

Completion Notes: EOB @ 10' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Well Log .

Project No.: 01-5363-0-001

Well No.: PSB/TMW-13

Project Name: Commercial Property

Date Drilled: 4/28/2015

Facility ID#:

Drill Rig: 6712 DT

Logged By: KL

Sampling Method: 2.25" MC

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				<p>1" PVC Casing</p> <p>Ground Surface</p> <p>7.63'</p> <p>Approximate Water Level (6.83')</p> <p>1" 10-Slot PVC Screen</p> <p>12.63'</p>
0		GRASS/TOPSOIL		-	0.0	
0		SC- (Medium Dense) CLAYEY SAND (moist) Brown/Gray, fine		-	0.0	
2				-	0.0	
4			SS-1 3.0 - 4.0'	-	0.0	
4				-	0.0	
6		CL- (Stiff) CLAY (moist) Gray, trace gravel		-	0.0	
6				-	0.0	
8		SP- (Loose) SAND (saturated) Brown, medium fine		-	0.0	
8		CL- (Medium Stiff) CLAY (moist) Gray		-	4.2	
10		GW- (Loose) GRAVELLY SAND (saturated) Medium coarse		-	1315	
10				-	839	
10				-	1545	
12		CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 12.0 - 13.0'	-	142	
12				-	30.5	
14				-	48.7	
16				-	12.2	
16				-	10.5	
18		GW- (Loose) GRAVELLY SAND (saturated) Gray, medium coarse		-	5.3	
18				-	2.1	
20				-	1.3	

Completion Notes: EOB @ 20' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-14

Project Name: Commercial Property

Date Drilled: 4/29/2015

Facility ID#:

Drill Rig: HA

Logged By: KL

Sampling Method: Grab

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
	█	CONCRETE				
	▨	SC- (Medium Dense) CLAYEY SAND (moist) Dark Brown, fine		-	0.1	
2				-	2.5	
	▨	SP- (Loose) SAND (moist) Brown, medium fine		-	0.2	
4				-	0.0	
	▨	CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-1 4.0 - 5.0'	-	0.0	
6				-	0.0	
	▨	SP- (Loose) SAND (moist) Brown, mediumfine		-	0.0	
8				-	0.0	
	▨	CL- (Stiff) CLAY (moist) Gray, trace gravel	SS-2 9.0 - 10.0'	-	9.8	
10				-	53.6	
				-	31.6	
12				-	4.8	
				-	1.4	
14						

Completion Notes: EOB @ 13' bgs. Hole filled with bentonite and soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-15

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE		No Well Installed	
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts		PID (ppm)
0		Ground Surface				
		CONCRETE				
		SP- (Loose) SAND (moist) Brown, fine, with trace gravel		-	0.0	
2				-	0.0	
		CL- (Stiff) CLAY (moist) Dark Gray, with little sand	SS-1	-	0.0	
4		CL- (Stiff) CLAY (moist) Brown/Gray, with little sand	2.5 ~ 3.5'	-	0.0	
				-	0.0	
6				-	0.0	
				-	0.0	
8				-	0.0	
				-	0.0	
10			SS-2	-	0.0	
			10.0 ~ 11.0'	-	0.0	
12		SP- (Loose) SAND (saturated) Brown, fine		-	0.0	

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-16

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE		No Well Installed
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	
0		Ground Surface			
		GRASS			
		SP- (Loose) SAND (moist) Brown, fine, with trace gravel		-	0.0
				-	0.0
2		CL- (Medium) CLAY (moist) Brown/Gray, with little sand		-	0.0
		CL- (Stiff) CLAY (moist) Greenish Gray, with little sand	SS-1 3.0 ~ 4.0'	-	0.0
4		CL- (Stiff) CLAY (moist) Brown/Gray, with little sand		-	0.0
				-	0.0
				-	0.0
6				-	0.0
			SS-2 7.0 ~ 8.0'	-	0.0
8				-	0.0
				-	0.0
				-	0.0
10				-	0.0
				-	0.0
12				-	0.0

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings and bentonite.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-17

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS				
		SP- (Loose) SAND (moist) Brown, fine, with trace gravel		-	0.0	
				-	0.0	
2		CL- (Stiff) CLAY (moist) Brown, with little sand		-	0.0	
		SP- (Loose) SAND (moist) Dark Gray/Reddish, with trace gravel	SS-1 3.0 ~ 4.0'	-	0.0	
4		CL- (Stiff) CLAY (moist) Brown/Gray, with trace sand		-	0.0	
				-	0.0	
6				-	0.0	
		CL- (Medium) CLAY (moist) Gray, with little sand	SS-2 7.0 ~ 8.0'	-	0.0	
8				-	0.0	
				-	0.0	
10				-	0.0	
				-	0.0	
12		SP- (Loose) SAND (saturated) Brown, fine		-	0.0	

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-18

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		CONCRETE				
		SP- (Loose) SAND (moist) Brown, fine		-	0.0	
				-	0.0	
2		CL- (Medium) CLAY (moist) Brown, with little sand	SS-1	-	0.0	
		SP- (Loose) SAND (moist) Dark Gray fine, with little clay	2.0 ~ 3.0'	-	0.0	
		CL- (Stiff) CLAY (moist) Brown/Gray, with little sand		-	0.0	
4				-	0.0	
				-	0.0	
6				-	0.0	
				-	0.0	
8			SS-2	-	0.0	
			7.0 ~ 8.0'	-	0.0	
				-	0.0	
10		SP- (Loose) SAND (saturated) Brown, fine		-	0.0	
				-	0.0	
				-	0.0	
12						

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-19

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS				
		SP- (Loose) SAND (moist) Brown/Dark Brown, fine, with trace clay/gravel		-	0.0	
2				-	0.0	
				-	0.0	
			SS-1			
4		CL- (Medium) CLAY (moist) Brown/Gray, with little sand (small sand seam @ 5.5')	3.0 ~ 4.0'	-	0.0	
				-	0.0	
			SS-2			
6			5.0 ~ 6.0'	-	0.0	
				-	0.0	
				-	0.0	
8		SP- (Loose) SAND (saturated) Brown, fine with trace gravel		-	0.0	
				-	0.0	
				-	0.0	
10		CL- (Medium) CLAY (moist) Gray, with little sand		-	0.0	
				-	0.0	
12						

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-20

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		GRASS				
		SP- (Loose) SAND (moist) Dark Brown, with little clay and trace gravel		-	0.0	
				-	0.0	
2				-	0.0	
			SS-1 3.0 ~ 4.0'	-	0.0	
4		CL- (Medium) CLAY (moist) Brown/Gray, with little sand		-	0.0	
				-	0.0	
6			SS-2 6.0 ~ 7.0'	-	0.0	
				-	0.0	
8		SP- (Loose) SAND (saturated) Brown, fine		-	0.0	
				-	0.0	
10		CL- (Medium) CLAY (moist) Gray, with little sand		-	0.0	
				-	0.0	
12						

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-21

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400

Logged By: CW

Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE		No Well Installed
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	
0		Ground Surface			
		GRASS			
		SP- (Loose) SAND (moist) Brown, fine, with trace clay		-	0.0
2				-	0.0
		SP- (Loose) SAND (moist) Dark Brown/Black, with trace clay	SS-1 3.0 ~ 4.0'	-	0.0
4		SP- (Loose) SAND (moist) Brown, fine		-	0.0
6				-	0.0
		SP- (Medium) SAND (moist) Black, with some clay	SS-2 7.0 ~ 8.0'	-	404
8		CL- (Medium) CLAY (moist) Black/Gray, with little sand		-	167.0
10				-	85.7
				-	11.9
		SW- (Loose) SAND (saturated) Brown/Gray, with some loose gravel		-	0.5
12					

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.



Boring Log .

Project No.: 01-5363-0-001

Boring No.: PSB-22

Project Name: Commercial Property

Date Drilled: 11/12/2015

Facility ID#:

Drill Rig: 5400


Logged By: CW


Sampling Method: MC5

SUBSURFACE PROFILE			SAMPLE			
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	No Well Installed
0		Ground Surface				
		CONCRETE				
		SP- (Loose) SAND (moist) Brown/Dark Brown, fine		-	0.0	
2				-	0.0	
				-	0.0	
4				-	0.0	
				-	0.0	
6		CL- (Medium) CLAY (moist) Gray/Brown, with trace sand	SS-1 5.0 ~ 6.0'	-	0.0	
				-	0.0	
8		SP- (Loose) SAND (saturated) Brown		-	0.0	
				-	0.0	
10		CL- (Medium) CLAY (moist) Gray, with little sand (odor)	SS-2 9.0 ~ 10.0'	-	85.4	
				-	11.4	
12				-	0.2	

Completion Notes: EOB @ 12' bgs. Hole filled with soil cuttings.

- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
- Boring backfilled with natural soils unless otherwise noted.

 Global Environmental Engineering, Inc. 6140 Rashelle Drive Suite 1 Flint, Michigan 48507 Phone: (810) 238-9190 Fax: (810) 238-9195	Boring ID: SB1		Date: July 31, 2012		File: F1497
	Contractor: Fibertech		Location: 910 E. Main St.		
	Logged by: Mark Keyes		City, State: Owosso, MI		
	Time Started: 12:16 PM		Depth Drilled: 16		
	Time Finished: 12:57 PM		Hole Size: 2"		
			Coring Device: Geoprobe		
Boring Method		Groundwater Information			
	Hollow Stem Auger		GW Encountered at:		Driller: Chad
X	Geoprobe		Monitoring Well Installed		Assistant:
	Hand Auger		Yes	No	
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
		Asphalt			
1		Sand, Trace coarse gravel	Orange and brown, moist sand, fine and poorly sorted.		
2					
3		Sandy Clay	Dark brown, moist sand.		
4					
		Sand/Concrete	Light brown, moist sand with fine trace gravel.		
5		Sandy Clay	Dark brown, moist sandy clay.		Sample
6					
7					
8		Caly	Grey, moist clay.		Sample
9					
10					
11					
12		Sand	Grey, wet, coarse sand with gravel.		
13					
14					
15					
16			EOB		
17					
18					
19					
20					

 Global Environmental Engineering, Inc. 6140 Rashelle Drive Suite 1 Flint, Michigan 48507 Phone: (810) 238-9190 Fax: (810) 238-9195		Boring ID: SB2				
		Date: July 31, 2012	File: F1497			
		Contractor: Fibertech	Location: 910 E. Main St.			
		Logged by: Mark Keyes	City, State: Owosso, MI			
		Time Started: 1:19 PM	Depth Drilled: 16			
		Time Finished: 1:34 PM	Hole Size: 2"			
Boring Method		Groundwater Information				
Hollow Stem Auger		GW Encountered at:	Driller: Chad			
X	Geoprobe	Monitoring Well Installed				
	Hand Auger	Yes	No			
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample	
			Asphalt			
1		Sandy Clay	Brown, moist sandy clay with fine trace gravel.			
2						
3		Clay	Brown, moist clay.			
4						
5				Brow/grey, moist clay.		
6						
7		Grey, moist clay.				
8						
9		Silty Sand	Light brown, moist sand.			
10		Sandy Clay	Grey, moist sandy clay.	Sample		
11		Sandy Gravel	Grey, wet sandy gravel.			
12		Clay	Grey, moist clay.			
13			EOB			
14						
15						
16						
17						
18						
19						
20						




Global Environmental Engineering, Inc.
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 Suite 1
 Flint, Michigan 48507
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 Fax: (810) 238-9195

Boring ID:

SB3

Date:	July 31, 2012	File:	F1497
Contractor:	Fibertech	Location:	910 E. Main St.
Logged by:	Mark Keyes	City, State:	Owosso, MI
Time Started:	1:37 PM	Depth Drilled:	16
Time Finished:	1:50 PM	Hole Size:	2"
		Coring Device:	Geoprobe

Boring Method		Groundwater Information			
	Hollow Stem Auger	GW Encountered at:		Driller: Chad	
X	Geoprobe	Monitoring Well Installed		Assistant:	
	Hand Auger	Yes	No		
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
1			Asphalt		
2		Sandy Clay	Brown, moist sandy clay.		
3					
4					
5					
6		Clay	Grey with orange/brown mottling, moist clay.		
7					
8					
9		Silty Sand			
10		Sandy Clay			Sample
11		Gravel	Gravel		
12					
13		EOB			
14					
15					
16					
17					
18					
19					
20					

 Global Environmental Engineering, Inc. 6140 Rashelle Drive Suite 1 Flint, Michigan 48507 Phone: (810) 238-9190 Fax: (810) 238-9195		Boring ID: SB			
		Date: July 31, 2012	File: F1497		
		Contractor: Fibertech	Location: 910 E. Main St.		
		Logged by: Mark Keyes	City, State: Owosso, MI		
		Time Started: 12:05 PM	Depth Drilled: 16		
		Time Finished: 12:15 PM	Hole Size: 2"		
		Coring Device: Geoprobe			
Boring Method		Groundwater Information			
Hollow Stem Auger		GW Encountered at:			
X	Geoprobe	Monitoring Well Installed			
Hand Auger		Yes	No		
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
1			Asphalt		
2		Clay	Brown, moist clay.		
3					
4					
5				Grey, moist clay.	
6		Sand	Tan, moist sand.		
7		Silty Clay	Grey, moist clay.		
8		Clay	Grey, brown mottled, wet clay.		
9					
10					
11					
12					
13			EOB		
14					
15					
16					
17					
18					
19					
20					



Global Environmental Engineering, Inc.
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Boring ID:

SB5

Date:	July 31, 2012	File:	F1497
Contractor:	Fibertech	Location:	910 E. Main St.
Logged by:	Mark Keyes	City, State:	Owosso, MI
Time Started:	2:22 PM	Depth Drilled:	16
Time Finished:	2:37 PM	Hole Size:	2"
		Coring Device:	Geoprobe

Boring Method		Groundwater Information			
Hollow Stem Auger		GW Encountered at:		Driller: Chad	
X	Geoprobe	Monitoring Well Installed		Assistant:	
	Hand Auger	Yes	No		
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
			Asphalt		
1		Sand	Brown, dry sand.		
2		Clay	Brown, moist clay.		
3					
4					
5		Clay	Grey, moist sandy clay.		
6					
7					
8		Sandy Gravel	Coarse sandy gravel.	Sample	
9		Clay	Grey, moist clay. Stiff with trace fine gravel.		
10					
11					
12					
13			EOB		
14					
15					
16					
17					
18					
19					
20					




Global Environmental Engineering, Inc.
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Boring ID: SB6

Date: July 31, 2012	File: F1497
Contractor: Fibertech	Location: 910 E. Main St.
Logged by: Mark Keyes	City, State: Owosso, MI
Time Started: 2:40 PM	Depth Drilled: 16
Time Finished: 2:55 PM	Hole Size: 2"
	Coring Device: Geoprobe

Boring Method		Groundwater Information			
Hollow Stem Auger		GW Encountered at:		Driller: Chad	
X	Geoprobe	Monitoring Well Installed		Assistant:	
Hand Auger		Yes	No		
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
			Asphalt		
1					
2		Sand	Dry sand.		
3					
4					
5		Silty Sand	Brown, moist silty sand.		
6					
7					
8					
9		Clay	Grey, moist, silty clay.		
10					
11					
12		Gravel	Coarse Gravel		
13			EOB		
14					
15					
16					
17					
18					
19					
20					

 Global Environmental Engineering, Inc. 6140 Rashelle Drive Suite 1 Flint, Michigan 48507 Phone: (810) 238-9190 Fax: (810) 238-9195	Boring ID:		SB7			
	Date: July 31, 2012		File: F1497			
	Contractor: Fibertech		Location: 910 E. Main St.			
	Logged by: Mark Keyes		City, State: Owosso, MI			
	Time Started: 3:00 PM		Depth Drilled: 16			
Time Finished: 3:06 PM		Hole Size: 2"				
		Coring Device: Geoprobe				
Boring Method			Groundwater Information			
Hollow Stem Auger			GW Encountered at:		Driller: Chad	
X	Geoprobe		Monitoring Well Installed		Assistant:	
Hand Auger			Yes	No		
Depth	USCS Code	Soil Type	Soil Description		PID/FID (ppm)	Sample
			Asphalt			
1		Sand				
2						
3						
4						
5		Sandy Clay	Brown sandy clay.			
6						
7						
8		Sand	Black sand.			Sample
9						
10		Clay	Grey clay.			
11						
12						
13			EOB			
14						
15						
16						
17						
18						
19						
20						



Global Environmental Engineering, Inc.
 6140 Rashelle Drive
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 Fax: (810) 238-9195

Boring ID: SB8

Date:	July 31, 2012	File:	F1497
Contractor:	Fibertech	Location:	910 E. Main St.
Logged by:	Mark Keyes	City, State:	Owosso, MI
Time Started:	3:23 PM	Depth Drilled:	16
Time Finished:	3:40 PM	Hole Size:	2"
		Coring Device:	Geoprobe

Boring Method		Groundwater Information			
	Hollow Stem Auger	GW Encountered at:		Driller: Chad	
X	Geoprobe	Monitoring Well Installed		Assistant:	
	Hand Auger	Yes	No		
Depth	USCS Code	Soil Type	Soil Description	PID/FID (ppm)	Sample
1			Asphalt		
2		Sand	Brown sand.		
3					
4		Sandy Clay	Black sandy clay.	Sample	
5					
6					
7					
8		Clay	Brown/grey clay.		
9					
10					
11					
12		Sand	Tan sand.		
13			EOB		
14					
15					
16					
17					
18					
19					
20					

APPENDIX D
ADDENDA

(TO BE ISSUED AS AN ADDENDUM)