

TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION	TITLE	PAGES THRU
I	SUMMARY OF WORK	01-1
II	SITE GENERAL PROVISIONS	01-1 TO 01-2
III	METHOD OF MEASUREMENT AND BASIS OF PAYMENT	01-3
IV	PROJECT MEETINGS	01-3
V	SUBMITTALS	01-3 TO 01-8
VI	FIELD ENGINEERING	01-8
VII	REGULATORY REQUIREMENTS	01-8 TO 01-12
VIII	REFERENCES	01-12
IX	SPECIAL PROJECT PROCEDURES	01-12
X	ASBESTOS ABATEMENT SPECIAL PROJECT PROCEDURES	01-13
XI	QUALITY CONTROL	01-13
XII	CONSTRUCTION FACILITIES AND TEMPORARY ENVIRONMENTAL CONTROLS	01-13 TO 01-14
XIII	MATERIAL AND EQUIPMENT	01-14 TO 01-15
XIV	CONTRACT CLOSE-OUT	01-15

DIVISION 02 – SPECIFIC REQUIREMENTS

SECTION	TITLE	PAGES THRU
I	MAINTENANCE OF EXISTING CONDITIONS	02-1
II	SOIL EROSION AND SEDIMENTATION CONDITIONS	02-1 TO 02-2
III	WORKER PROTECTION	02-2 TO 02-4
IV	RESPIRATORY PROTECTION	02-4 TO 02-8

DIVISION 03 – SITE WORK

SECTION	TITLE	PAGES THRU
I	CLEARING AND GRUBBING AND TREE REMOVAL	03-1
II	WELL AND SEPTIC SYSTEM ABANDONMENT	03-1 TO 03-2
III	RESILIENT FLOORING REMOVAL – AGGRESSIVE ASBESTOSABATEMENT	03-2 TO 03-6
IV	DISPOSAL OF REGULATED ASBESTOS-CONTAINING MATERIAL	03-7 TO 03-8
V	HAZARDOUS AND UNIVERSAL WASTE MANAGEMENT	03-8 TO 03-10
VI	BUILDING DEMOLITION	03-10 TO 03-14
VII	REMOVAL AND DISPOSAL OF HAZARDOUS LEAD-IMPACTED SOILS AND DEBRIS	03-14 TO 03-17
VIII	BACKFILLING	03-17 TO 03-18
IX	SITE RESTORATION	03-18 TO 03-19

APPENDIX I – SHEETS

- Sheet 1 – Title Sheet
- Sheet 2 – Existing Conditions
- Sheet 3 – Demolition Plan
- Sheet 4 – Details

APPENDIX II – REPORTS

APPENDIX III – FORMS

DIVISION 01

GENERAL REQUIREMENTS

I. SUMMARY OF WORK

A. GENERAL:

1. The following scope of Work is not intended to represent the full amount of the Work required to complete this project. It is only intended to serve as a general guideline. The successful bidder will assume responsibility to assure that all facets of the Work are included in their proposal.
2. In general, this Project shall include all material, labor and equipment necessary to complete asbestos-containing material (ACM) abatement, demolition activities, wells and septic tanks abandonment, limited lead-impacted soil and surficial debris removal and site restoration, as directed by the City or its authorized agent.
3. The site is addressed 3013 West Huron River Drive, located in Ann Arbor, Washtenaw County, Michigan. The site as referenced to nearby roads is depicted on *Sheet 1, Title Sheet* located in *Appendix I, Sheets*.

B. SEQUENCE OF WORK

1. The Contractor shall prepare, submit, and obtain the City's and its authorized agent's acceptance of the Health and Safety Plan (HASP), Work Plan, and ACM Abatement Plan prior to beginning any on-site Work. The Contractor shall also obtain all required State and local permits and provide copies to the City or its authorized agent prior to any on-site Work.
2. The following is a preferred sequence of on-site Work activities. The Contractor may perform this Work in a different sequence if so desired, at no additional cost to the City or its authorized agent. The Work Plan shall include the Contractor's Sequence of Work.
 - a. Mobilize to the site, including the transport of all equipment, tools, and materials necessary to perform and complete the Work.
 - b. Install temporary barricades and securing site safety.
 - c. Clear and grub work areas.
 - d. As required, install temporary erosion control measures (geotextile silt fence) prior to the start of any Work and maintain at all times until Work is completed.
 - e. Install temporary facilities and utility services.
 - f. Disconnect utilities and remove associated utility pole, transformer and all related appurtenances.
 - g. Abandonment of a water well and crock well (assumed depth 30 feet) by a licensed water well drilling contractor registered in the State of Michigan.
 - h. Abandonment of two (2) septic systems.
 - i. Abate, transport, and dispose approximately 200 square feet of non-friable floor tiles located within the vacant residential building.
 - j. Remove, transport, and dispose universal and other regulated wastes from the vacant residential building and outbuilding.
 - k. Demolition of the vacant residential building and outbuilding (approximately 4,000 square feet).
 - l. Remove, transport, and dispose demolition debris.
 - m. Remove, transport, and dispose approximately 10 cubic yards of hazardous lead-impacted soil and debris.
 - n. Remove, transport and dispose and/or recycle approximately five (5) tons of surficial debris.
 - o. Site restoration.
 - p. Project Close-out activities.

C. NOTICES OF ON-SITE WORK

1. The Contractor shall notify the City and its authorized agent, in writing, of the date of starting Work at least ten (10) business days prior to that date.

D. COORDINATION OF NOISE, DUST, AND FUMES

1. Contain noise, dust and fumes within Work area. Notify the City or its authorized agent at least 48 hours prior to any necessary excessive noise, dust or fumes. Comply with the City or its authorized agent instructions.
2. As part of the overall Health and Safety Plan (HASP) the Contractor must maintain, at all times, dust control measures to the satisfaction of the City or its authorized agent and shall monitor air quality at the site, as required, to protect workers and neighbors. The Contractor shall establish action levels for organic vapors, dusts, etc. to protect the health and safety of the employees and other on-site personnel.

II. SITE GENERAL PROVISIONS

A. GENERAL

1. The Contractor shall provide all labor, materials, tools, equipment and incidentals necessary for the preparation and completion of the Work.

B. EXISTING PUBLIC UTILITIES

1. The Contractor shall contact MISS-DIG and other applicable local utility companies/authorities for utility identification a minimum of three (3) working days (72 hours) prior to any Work at the site. The Contractor shall comply with 1974 PA 53, as amended, MCL 460-701 et seq., and all other laws concerning underground utilities.

- a. The Contractor is to cut, cap and subsequently re-construct (if required) all underground utilities encountered during the Work. All such Work shall be considered incidental to the Contract.
 - b. The Contractor shall assume all risks attending to the presence or proximity of all underground and surface structure within or adjacent to the Work limits. The Contractor shall be responsible for all damage and expense for direct or indirect injury caused by the Work to any structure. The Contractor shall repair immediately all damage caused by the Work to the satisfaction of the owner of the damaged structure.
 - c. The Contractor shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the Work limits other than those specifically stated to be demolished. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structures. Before proceeding with the Work of sustaining and supporting each structure, the Contractor shall satisfy to the City or its authorized agent that the methods and procedures to be used have been approved by the party owning the same.
 - d. Wherever culverts, sewers, drains, manholes, catch basins, catch basin connections, water mains, valve chambers, electric conduits, telephone conduits, or any other underground constructions are encountered by the Contractor during the Work, they shall be protected and firmly supported by the Contractor, at the Contractor's expense, until the Work is complete and the existing structures are made secure. Injury to any such utilities/structures caused by or resulting from the Contractor's Work shall be repaired at the Contractor's expense and considered incidental to the Contract. The authority having charge of any particular underground structure shall be notified promptly of injury to its structure.
 - e. No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from said utility appurtenances or the operation of moving them by the utility companies.
2. The Contractor shall conduct operations so as not to damage any existing utilities whether shown on Work plans or not. The Contractor shall correct, at their own expense, any injury caused during the operations of their subcontractors or suppliers.
 3. The Contractor shall make all the necessary arrangements for the provisions of all utility services, temporary or permanent, required under this Contract. The Contractor shall pay all costs for such connections and services and shall be considered incidental to the Contract.

C. CLEARING AND GRUBBING

1. Trees and shrubs are not to be removed unless required by the Work and/or with the express permission of the City or its authorized agent. Where trees are to be removed, the Contractor shall remove such trees and stumps to a depth of at least one (1) foot below the proposed finish grade. All stumps, logs, branches and debris shall be removed from the site and disposed of by the Contractor. All clearing and grubbing necessary to access the site and complete the Work shall be considered incidental to the Contract.

D. WORK AREA AND STORAGE OF MATERIALS

1. The working area shall be organized in an orderly manner with storage, sanitary facilities, parking areas for employees, and all other necessary facilities developed and maintained by the Contractor.

E. FINISH GRADING

1. After all backfilling and rough grading operations have been completed, the entire disturbed area at the site shall be graded to smooth, even surfaces to match pre-work conditions.
 - a. All debris, large stones, fallen and dead trees, and sticks shall be removed from the Work area and disposed of and the entire disturbed area made ready for the addition of topsoil and seeding.
2. After all Work related operations have been completed; the Contractor shall evenly spread four (4) inches of approved, clean topsoil over all graded areas, as directed by the City or its authorized agent.

F. SOIL CHARACTERIZATION SAMPLING

1. Waste characterization sampling, as required, will be the responsibility of the Contractor and shall be considered incidental to the Contract.

G. SOIL CONFIRMATION SAMPLING

1. Confirmation soil samples will be collected and submitted for laboratory analysis by the City or its authorized agent.

III. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

A. GENERAL

1. SCHEDULE OF VALUES

- a. Prior to commencement of Work, the Contractor must submit a Schedule of Values to the City for review and approval of various tasks that must be performed to complete the Work. The Schedule of Values must show each task and the corresponding value to complete each task including incidental costs. The aggregate total value for all tasks must be equal to the total Contract sum including approved alternate task values.
- b. The method of measurement and the basis of payment for each item in the Proposal will be as specified in the schedule attached. The items are generally grouped by the section of the Specifications under which the particular unit of Work is detailed. There will be no payment allowed for any unit for Work not specifically mentioned in the Proposal as a bid item, and any such unit of Work not mentioned in the Proposal, but necessary for the completion of the Work, will be considered as incidental to the Contract.

B. MEASUREMENT

1. Quantities of Work completed under the Contract will be measured by the City or its authorized agent according to the United States standard measures. When tons are specified, the unit shall be the ton of 2,000 pounds. When measurements are stated in miles, stations, acres, they will be horizontal measurements unless specified otherwise. Where measurements are specified to be "in place" they will be taken along the actual surface of the completed item to obtain lineal, area, or volume measurements. When Work is completed on a "lump sum" bases, the Work will be considered complete when all aspects of the task have been completed to the satisfaction of the City or its authorized agent.
2. Mobilization/Demobilization, site preparation and site service Work tasks shall not exceed 10% of the base bid amount. Cost of required submittals, permitting fees, temporary facilities and project meetings are incidental cost associated with the identified pay item "Site Preparation, Submittals, and Site Service" and "Mobilization and Demobilization".
3. Information regarding the quantities of the materials at the site, including the methods and assumptions used to estimate quantities, is provided in *Appendix II, Reports*.

C. PAYMENT

In each and every instance in the schedule attached, where a Basis of Payment is specified, it shall be understood to be prefaced by the following statement, "The Contract unit price in the Proposal will be payment in full for all labor, materials, and equipment necessary to do the following according to the Sheets and Specifications." Payment shall be made on the basis of the actual quantity of the time completed and accepted at the unit price for such item named in the Proposal.

IV. PROJECT MEETINGS

A. GENERAL

1. Pre-Construction Meeting

- a. The City will schedule a pre-construction meeting to be attended by its authorized agent and the Contractor. The Contractor shall attend and participate in the pre-construction meeting. The Contractor shall be prepared to discuss Project procedures, identify any Project issues that may arise and discuss any deviation from submitted plans. Once the Project has been started, the Contractor must carry it to completion without delay.

2. PROGRESS MEETINGS

- b. The City or its authorized agent will schedule progress meetings to be held on the site, on an as-needed basis, 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.

V. SUBMITTALS

A. GENERAL:

Within ten (10) working days following the Notice to Proceed, the Contractor shall submit two (2) copies of the following administrative submittals. The Contractor shall not initiate field activities until the City or its authorized agent has reviewed and accepted (as necessary) the following submittals:

<u>Submittal</u>	<u>Can be included in Work Plan</u>
HASP	No
Sample Daily Work Log	Yes
Sample Daily Progress and Site Safety Forms	Yes
Project Schedule	Yes
Schedule of Values	No
Waste Profile Approval	No
Work Plan	No
Notification of Intent to Renovate/Demolish	No
Building Permit	No
Soil Erosion Sedimentation Control (SESC) Implementation and Sequencing Plan	Yes
Scio Township Notification Form	No
Other Permits (If Applicable)	No

B. APPLICABILITY

This section applies to all administrative and technical submittals described in this document.

C. PRE-WORK SUBMITTALS

1. Work Plan

The Contractor shall develop, implement, and maintain a Work Plan for all site activities as part of this work. The Work Plan shall be submitted prior to proceeding with any Work. The cost of Work Plan preparation is incidental to the Contract. No adjustment for time or money will be made for re-submittals required as a result of noncompliance. The Work Plan shall, at a minimum, present the following:

- a. Description of the methods and equipment to be used for each operation (i.e., lead-impacted soil and surficial debris removal, well and septic tank abandonment, abatement, building demolition, transportation, disposal, sampling, etc.).
- b. Scheduling and operational sequencing.
- c. Temporary storage area for stockpiled demolition debris.
- d. Transportation companies.
- e. Licensed recycling and/or disposal facility.
- f. Method to protect any surface water bodies during demolition activities in close proximity of the site.
- g. Description of the means, methods, and procedures for site restoration.

2. Health and Safety Plan

The Contractor's HASP is provided to the City or its authorized agent for informational purposes only and for implementation by the Contractor. The City or its authorized agent may review the HASP for completeness. Comments will be provided to the Contractor, but no approval of the HASP will be granted. Following inclusion of the comments, the City or its authorized agent will accept the HASP.

- a. The site-specific HASP shall meet the requirements, at a minimum, of the following:
 - i. 29 CFR 1904 – Record Keeping, OSHA, as amended.
 - ii. 29 CFR 1910 – Safety and Health regulations for general Industry, OSHA, as amended.
 - iii. 29 CFR 1926: Safety and Health Regulations for Construction, OSHA, as amended.
 - iv. 49 CFR 171.8 – Hazardous Materials in Transport, USDOT, as amended.
 - v. 40 CFR 261.3, 264, and 265, RCRA, United States Environmental Protection Agency's (USEPA), as amended.
 - vi. Standard Operating Safety Guides, USEPA, November 1984.
 - vii. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH Publication No. 85-115, October 1985.
- b. The HASP is an enforceable document that shall guide the activities of the Contractor's and all subcontractor personnel. The HASP shall define site-specific safety provisions required for all project activities of the Contractor and subcontractors.
- c. Hazard Communication Program – A hazard communication program shall be used in accordance with 29 CFR Part 1926.59.
- d. The Contractor and Contractor's safety officer shall be solely responsible for the implementation and monitoring of the Contractor's HASP. The HASP shall address, but not be limited to, the following items:
 - i. Describe the Contractor's proposed health and safety organization and procedures for continuous updating of the HAPS as required by actual Site conditions. The City or its authorized agent shall be notified in writing of any proposed changes to the HASP.

- ii. Identify the types and levels of training provided to all Site workers and other on-site personnel prior to their assignment to this Work. Provide the name, qualifications, and responsibilities of the Site Safety Officer and related health and safety staff. Provide appropriate certifications for all individuals who will be involved in the Work. No Contractor personnel shall participate in the Work until proper and up-to-date training certification has been submitted to the Professional.
 - iii. All on-site personnel involved in waste removal Work or handling of waste materials shall be enrolled in an ongoing medical monitoring program as identified in 29 CFR 1901, as amended, and shall be appropriately certified for the Work. The HASP shall describe the Contractors medical monitoring program. The Contractor shall provide documentation of each individual's certification under the medical monitoring program if and when requested by the Owner and Professional.
 - iv. The Contractor's HASP will identify the means of personal protection, including the use of engineering controls, to be used for each Work activity as defined in the USEPA *Standard Operating Safety Guides*. The HASP will identify conditions that would require an increased level of protection during each Work activity. Procedures for protecting personnel from other physical hazards (heat and cold stress, excessive noise, etc.) shall also be described in the HASP.
 - v. The Contractor's HASP shall provide a Contingency Plan that sets for the policies and procedures for responding to emergency situations such as fire, physical injury, release of hazardous materials, etc.
 - vi. The Contractor's HASP shall identify the procedures that will be used to ensure safe waste handling during the universal and other regulated waste removal and building demolition and removal activities.
 - vii. The Contractor shall provide an uncontaminated changing area for personnel. No person shall leave a contaminated Work area unless they have removed or decontaminated all protective clothing. No protective equipment (including boots) or tools shall be worn or carried out of the Work areas unless properly decontaminated.
 - viii. Personnel performing decontamination shall be dressed at appropriate levels of protection to avoid personal contamination.
 - ix. No vehicle shall leave the Work area with contaminated waste material or soil clinging to the wheels or any part of the vehicle is such a way that it has the potential for being deposited at any location other than the disposal facility.
 - x. The City or its authorized agent may require revisions to the HASP; however, extensions to the time period of this Contract will not be granted if caused by delays in developing an acceptable HASP.
 - xi. The Contractor shall conduct all operations in accordance with the HASP. Disregard for provisions of the HASP shall be deemed just and sufficient cause for suspension of Work and/or removal of the Contractor's personnel without comprise of prejudice to the rights of the City or its authorized agent.
3. SESC Implementation and Sequencing Plan. This Plan may be included as part of the Work Plan.
- a. The SESC Implementation and Sequencing Plan shall include a minimum of the following:
 - i. Implementation, schedule and sequence for installation and removal of temporary and permanent soil erosion and sedimentation control measures.
 - ii. Name and contact information of the person responsible for maintenance.
 - iii. The SESC Implementation and Sequencing Plan shall be based on Part 91 of P.A. 451 and the costs associated with all permit application and fees and work plan preparation shall be considered incidental to this Contract.
 - iv. The Contractor shall also submit to the City or its authorized agent a copy of the Certified Storm Water Operator's certificate from the State of Michigan and a copy of correspondence relating to termination of the Soil Erosion and Sedimentation Control Permit and other associated permits.

4. Schedule of Values

Before the construction start date the Contractor must submit a Schedule of Values to the City or its authorized agent for review and approval, of the various tasks that must be performed to complete all the Work. The schedule must show each task and the corresponding value of the task, including separate monies allocated for General Condition items and Project close-out. The aggregate total value for all tasks must be equal to the total Contract sum.

5. Daily Progress and Daily Site Safety Forms

The Daily Progress Forms shall outline the Work accomplished during the reporting period and Work to be accomplished during the subsequent reporting period, problems (real or anticipated) that should be brought to the attention of the City or its authorized agent, and notification of any significant deviation from previously agreed upon Work Plans. The Daily Site Safety Forms shall describe the safety meeting(s), any changes in protection, any safety incidents and results, and any changes to the HASP necessitated by site conditions.

6. Project Schedule

The Contractor shall provide a Project Schedule that contains the following:

- a. Administrative and technical submittal dates and required approval dates.
- b. Work activities and durations with expected start and finish dates.
- c. Date of anticipated Substantial Completion.

d. Date of anticipated Final Completion.

7. Before Start of Work: Submit the following to the City or its authorized agent for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent.
- a. AHERA Accreditation: Submit copies of certificates from an USEPA-approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited.
 - b. State of Michigan: Submit evidence that all workers have been trained, certified and accredited as required by the requirements set forth by the Michigan Department of Licensing and Regulatory Affairs (LARA).
 - c. Certificate Worker Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment (*Appendix III, Forms*) for each worker who is to be at the job site or enter the Work Area.
 - d. Report from Medical Examination: conducted within last 12 months as part of compliance with medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each worker the following:
 - i. Name and Identification Number.
 - ii. The physician's written opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos.
 - iii. Any recommended limitations on the employee or on the use of personal protective equipment such as respirators.
 - iv. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
 - v. A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure (29 CFR 1926.1101(m)).
 - vi. A legible typed version of the physician's name, the physician's signature, and date of examination.
8. Notarized Certifications: Submit certification signed by an officer of the abatement contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926 and the requirements set forth by the LARA.

D. OTHER ADMINISTRATIVE SUBMITTALS

1. Daily Work Log

The Contractor shall maintain a daily log of Work activities, including the Work of suppliers and subcontractors. This log shall be in an acceptable and legible form. It shall include a description of the trades working on the project, the number of personnel working, the weather conditions encountered, any delays encountered, and acknowledgement of deficiencies noted along with the corrective actions taken on current and previous deficiencies noted along with the corrective actions taken on current and previous deficiencies. In addition, the log shall include factual evidence that the required activities have been performed, including but not limited to the following:

- a. Type and number of activities
- b. Nature of defects, causes for rejection, etc.
- c. Corrective actions taken
- d. Proposed remedial action
- e. Any spills that occurred

The log shall cover both conforming and defective or deficient features and shall include a statement that supplies and materials incorporated into the Work comply with the Contract requirements. Legible copies of the log shall be provided to the City or its authorized agent upon request.

2. Permits and Approvals

The Contractor shall provide the Professional with copies of all permits, inspection reports, approvals, licenses, exemptions or other governmental documents or submittals obtained or submitted as part of the Work. These documents shall be provided to the Professional in a timely manner.

3. Disposal Records

- a. Certifications: Written statement that Contractor shall dispose inert, impacted, and hazardous construction waste debris in accordance with the solid waste management plans of both the shipping and receiving counties. This statement shall be signed by an officer of the Contractor and shall be properly notarized.

b. Disposal Documents

The Contractor shall provide to the City and its authorized agent copies of all licenses, certifications, permits, agreements, manifests, chain-of-custody records, weigh tickets, meter recordings, delivery tickets, and receipts required or issued for the disposal or recycling of materials, the methods used, and the disposal or recycling areas and facilities. The Contractor shall also provide a copy of the results of tests performed to comply with the requirements of each disposal.

c. Manifests and Bills of lading

The Contractor shall submit to the City and its authorized agent a copy of the official manifest, bill of lading, and/or weigh ticket for each shipment of removed materials including, but not limited to, building debris, concrete and brick debris, and miscellaneous site debris and solid wastes evidencing delivery of the material to an approved licensed disposal/recycling facility. All manifests shall be in accordance with the requirements of all applicable Federal, State and local laws and regulations. Manifests shall be signed by the City and its authorized agent, on behalf of the City, and copies of the manifests or bills of lading shall be submitted to the City and its authorized agent within two (2) business days of the material leaving the site.

d. Contractor shall submit the following Submittals to the City and its authorized agent at least three (3) business days prior to pre-construction meeting for approval:

- i. The name and location of all disposal facilities that Contractor proposes to dispose of materials.
 - ii. The name and location of all companies that Contractor proposes to use for transporting materials to disposal facilities.
 - iii. The name and location of all testing laboratories Contractor proposes to use for testing samples.
 - iv. Copy of state and local licenses for waste hauler.
 - v. Michigan Identification Number of waste hauler.
 - vi. Name and address of waste disposal facility where hazardous waste materials are to be disposed including 1) contact person and telephone number; 2) copy of state license and permit; and 3) disposal facility permits.
 - vii. Specimen copy of Uniform Hazardous Waste Manifest form.
 - viii. Copy of USEPA "Notice of Hazardous Waste Activity" form.
 - ix. Copy of forms required by state and local agencies.
 - x. Sample of disposal label to be used.
- e. Waste Manifests: Contractor shall submit two (2) copies of uniform hazardous waste manifests for all impacted and hazardous debris taken off site. One (1) copy shall be submitted to City and its authorized agent within two (2) business days of the manifests being signed by the disposal facility.
- f. Disposal Facility Weight Tickets: Contractor shall submit disposal facility weight tickets to City or its authorized agent for all debris taken off site. Weight tickets shall be submitted to City and its authorized agent within one (1) business day of the debris or soil being disposed.
- g. Licenses: Contractor shall submit to the City or its authorized agent copies of all license required for the transportation vehicles and vehicle drivers that will be transporting inert, impacted, or hazardous construction waste. The licenses shall remain current throughout the duration of the work. In the case that a license expires, a copy of the renewed license shall be submitted to the Professional before the license expires.
- h. Disposal/recycling Log: Within five (5) business days of Substantial Completion, Contractor shall submit to City or its authorized agent one (1) copy of the waste disposal/recycling log that contains the following information:
- i. Date and time transportation vehicle left the site.
 - ii. Box volume of each transportation vehicle.
 - iii. Gross weight of each transportation vehicle.
 - iv. Tare weight of each transportation vehicle.
 - v. Net weight of each waste load disposed or recycled.
 - vi. Destination of each waste load disposed or recycled.
 - vii. Vehicle number.
 - viii. Driver name.
 - ix. Waste manifest number (if applicable) or certification of recycling.

4. Inspection Reports

The Contractor shall provide to the City or its authorized agent a copy of the records of inspections, tests, and any corrective action taken to address any problems encountered or generated throughout the duration of the Work.

5. During Work: Submit the following as required by the work.

Any laboratory chemical analysis or TCLP test results, as required to characterize waste for segregation, packaging and disposal purposes.

6. Punch List

The Contractor shall keep records of the Pre-Final and Final inspections, including a punch list of items that do not conform to the approved sheets and specifications. For each item on the list, the Contractor shall document corrective actions taken.

E. PRODUCTS

Not Used

F. EXECUTION

If the Contractor fails or refuses to comply with the submittal procedures promptly, the City may issue an order to stop all or part of the Work until satisfactory progress has been taken to correct such deficiencies. No part of the time loses due to any such stop orders shall be made the subject of claim or extension of time or for excess costs or damages by the Contractor.

VI. FIELD ENGINEERING

A. GENERAL:

1. When applicable, the Contractor must employ properly trained, experienced, and licensed staff for specialized task or skills required to conduct the Work. The Contractor agrees to assume all responsibility due to improper, inaccurate or poor quality of any Work.

VII. REGULATORY REQUIREMENTS

A. GENERAL:

Regulatory requirements include, but are not limited to, the following items:

1. Applicable Codes:
 - a. The Contractor shall comply with all Federal, State and Local rules, ordinances and the latest edition of regulations relating to buildings, employment, the preservation of public health and safety, and so forth. All applicable Federal, State, and local laws, ordinances, rules, and regulations are deemed to be included herein the same as though written in full. The Contractor shall comply with all authorities having jurisdiction over the Work. The following list of regulations does not necessarily include all regulations that may be applicable to Site activities and offsite transportation, recycling, or disposal. All regulations listed shall be as amended.
 - b. All necessary permits or certificates of inspection 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, unless otherwise provided by Cash Allowances specific to those connections.
 - c. 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 City and/or its authorized agent in writing. If the Contractor provides any Work knowing or having reason to know of such conflict, the Contractor shall be responsible for that performance.
2. Applicable Federal regulations regarding asbestos
 - a. Federal Regulations which govern asbestos abatement work or hauling and disposal of asbestos waste materials include, but are not limited to the following:
 - i. Asbestos School Hazard Abatement Reauthorization Act (ASHARA)
 - ii. Nation Emission Standards for Asbestos (NESHAP) (40 CFR 61, Subpart M)
 - iii. Asbestos Abatement Regulation (40 CFR 763)
 - iv. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite (29 CFR, 1910, Section 1001 and 1926, Section 1101)
 - v. Respiratory Protection (29 CFR, 1910, Section 134 and 1926)
 - vi. Personal Protective Equipment for General Industry (29 CFR, 1910, Section 132 and 1926, Sections 95 - 107)
 - vii. Access to Employee Exposure and Medical Records (29 CFR, 1926, Section 33)
 - viii. Hazard Communication (29 CFR, 1926, Section 59)
 - ix. Specifications for Accident Prevention Signs and Tags (29 CFR, 1910, Section 145)
 - x. Permit Required Confined Space (29 CFR, 1910, Section 146)
 - xi. Construction Industry (29 CFR, 1910, Section 1001 and 1926, Section 1101)
 - xii. Construction Industry - General Duty Standards (29 CFR, 1926, Sections 20 - 35)
 - xiii. Shipyard Industry (29 CFR Part, 1915, Section 1001)
 - xiv. Asbestos Abatement Projects; Worker Protection Rule (40 CFR, 763, Subpart G)

- xv. Asbestos Hazard Emergency Response Act (AHERA) Regulation (40 CFR, 763, Subpart E)
 - xvi. EPA Model Accreditation Plan - Asbestos Containing Materials Final Rule & Notice (40 CFR, 763, Subpart E, Appendix C)
 - xvii. NESHAP (40 CFR, 61, Subpart A, and Subpart M (Revised Sub-part B)). The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on Michigan Department of Environmental Quality (MDEQ) web site www.michigan.gov/deq under heading Air; then click on Asbestos NESHAP Program.
- b. The disposal of hazardous wastes, including land disposal restricted wastes at treatment and disposal facilities that are appropriately permitted shall be done in accordance with the following:
- i. Resource Conservation and Recovery Act of 1976 (RCRA)
 - ii. Title II of Toxic Substances Control Act, As Amended Through P.L. 107-377, December 2002 (TSCA)
 - iii. Identification and Listing of Hazardous Waste (40 CFR 261)
 - iv. Generator Standards (40 CFR 262)
 - v. Transporter Standards (40 CFR 263)
 - vi. Treatment and Storage Disposal Facilities (TSDF) Standards (40 CFR 264)
 - vii. RCRA Land Disposal Restrictions (40 CFR 268)
 - viii. Hazardous Waste Permit Program (40 CFR 270)
 - ix. Toxic Substances Control Act (TSCA)
 - x. Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution, and use Prohibitions (40 CFR 761)
 - xi. Compliance with the USEPA off-site disposal policy. Prior to shipment of wastes to any facility, provide evidence to the City or its authorized agent that the facility has been inspected and found to be in compliance as required by USEPA's off-site disposal policy.
- c. The transport of wastes shall be done in accordance with the following:
- i. All applicable United States Department of Transportation (USDOT) rules and regulations
 - ii. USEPA rules and regulations, including, but not limited to the following:
 - iii. Hazardous Waste Management Systems (40 CFR 260)
 - iv. Standards Applicable to Generators (40 CFR 262)
 - v. Standards Applicable to Transporters of Hazardous Waste (40 CFR 263)
 - vi. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (49 CFR 264)
 - vii. National Emission Standards for Asbestos (40 CFR 61, Subpart M)
 - viii. PCB Manufacturing, Processing, Distribution, and Use Prohibitions (40 CFR 761)
 - ix. United States Department of Labor (USDOL) Occupational Safety and Health Standards (29 CFR 1910)
 - x. USDOT Hazardous Material Regulations (49 CFR Subchapter C, Part 171-177)
 - xi. Hazardous Substances (49 CFR 171-172)
 - xii. USDOT Container Specifications (49 CFR 178-179)
 - xiii. Hazardous Material Regulations General Awareness and Training Requirements for Handlers, Loaders and Drivers (49 CFR, 171-180)
 - xiv. Hazardous Material Regulations Editorial and Technical Revisions (49 CFR, 171-180)
- d. All Site Work shall be conducted in accordance with the site-specific HASP and applicable regulations including, but limited to the following:
- i. USDOL Occupational Safety and Health Standards (29 CFR 1910, 1926)
 - ii. USEPA Hazardous Waste Management Systems (40 CFR 260)
 - iii. Standards Applicable to generators of Hazardous Waste (40 CFR 262)

2. State Regulations

- a. 1974 Public Act (PA) 154, Occupations Safety and Health Act, as amended
- b. The National Environmental Policy Act of 1969, as amended
- c. 1980 PA 299, Occupational Code, as amended
- d. 1994 PA 451, Natural Resources and Environmental Protection Act, as amended, to include, but not limited to the following:
 - i. 1994 PA 451, Part 17, Michigan Environmental Protection Act
 - ii. 1994 PA 451, Part 31, Water Resources Protection
 - iii. 1994 PA 451, Part 55, Air Pollution Control
 - iv. 1994 PA 451, Part 91, Soil Erosion and Sedimentation Control
 - v. 1994 PA 451, Part 111, Hazardous Waste Management
 - vi. Disposal of all wastes must comply with all intercounty waste management plans.
 - vii. Treatment of wastes through states other than Michigan shall be in compliance with all applicable requirements of those states.
 - viii. 1994 PA 451, Part 115, Solid Waste Management
 - ix. 1994 PA 541, Part 121, Liquid Industrial Wastes
 - x. 1994 PA 451, Part 147, PCB Compounds
 - xi. 1994 PA 451, Part 201, Environmental Response
 - xii. 1994 PA 451, Part 301, Inland Lakes and Streams
 - xiii. 1994 PA 451, Part 303, Wetlands Protection
- e. 1984 PA 423, Section 2 and 7, being Sections 29.3c, 299.702, and 288.707 of the Michigan Compiled Laws, as amended.
- f. Disposal shall be in compliance with Administrative Circular 36A.
- g. Transportation and traffic control, repairs to sidewalks or curbs, etc. shall be in compliance with 2012 Standard Specifications for Construction, Michigan Department of Transportation (MDOT), as amended.
 - i. West Huron River Drive has poor sight distance, no shoulder, and is enjoyed by local bicyclists. Caution is warranted when entering and leaving the site.
- h. State Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include, but are not limited to the following:
 - i. The USEPA has delegated the Air Quality Division (AQD) of the MDEQ with the authority to enforce the Asbestos NESHAP in Michigan. Michigan has adopted the federal regulations into the Michigan Administrative Code (MAC), 1995 AACRS R336.1942 (Rule 942), effective on December 31, 2003. The MDEQ-AQD conducts notification reviews, demolition and removal activities and initiates enforcement actions when violations occur. Disposal of asbestos is regulated by the Resource Management Division (RMD) of the MDEQ.
 - ii. The Construction Safety and Health Division of the Michigan Department of Licensing and Regulatory Affairs (LARA) implements the Asbestos Abatement Contractors Licensing Act, the Michigan Occupational Safety and Health Act (MIOSHA), the Asbestos Workers Accreditation Act, the MIOSHA Asbestos General Industry Standard, and the MIOSHA Asbestos Construction Standard. LARA also licenses asbestos contractors, approves training courses, accredits workers and conducts AHERA management plan review. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the LARA at (517) 322-1320 or visit LARA's web site www.michigan.gov/asbestos.
 - iii. Michigan State Police Department (MSPD) - The Hazardous Materials Unit of the Motor Carrier Division, (MSP) is responsible for enforcing the USDOT and MDOT regulations regarding shipping and transporting of packaged materials by highway.

3. Local Requirements

- a. The Contractor shall ascertain and comply with all applicable county and municipal ordinances, codes, rules, and regulations and obtain all required permits.
- d. Other Codes, Standards, and Guidance Documents
 - a. In addition to regulatory requirements, the Contractor shall follow the codes, standards, and guidance documents cited in other sections of these specifications such as, but not limited to, American Petroleum Institute (API) Recommended Practices, Environmental Protection Agency (EPA) Guidance Documents, Michigan State Memoranda and Administrative Circulars, and ASTM Standards.

- b. Other national codes not specifically cited in other sections of these specification with which the Contractor shall comply include, but may not be limited to the following:
 - i. Building Officials and Code Administrators (BOCA) *Basic Building Code*
 - ii. Associated General Contractors of America (AGC) *Manual of Accident Prevention in Construction*
 - iii. National Electric Code (NEC)
- e. Safety and Protection
 - a. 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 MIOSHA, 1974 PA 154, as amended, MCL 408.1001 et seq., and all rules promulgated under the Act.
 - b. The Contractor is responsible for all damages, injury or loss to the Work, materials, equipment, fines, and 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 or it authorized agent.
 - c. 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 City or it authorized agent is satisfied that the Work, or Work inspected, is completed and ready for final payment.
 - d. 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.
 - e. 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.

B. NOTICES:

- 1. State of Michigan:
 - a. Send written notification as required by state and local regulations prior to beginning any work on ACM. A copy of the State of Michigan Notification of Intent to Renovate/Demolish is provided in Appendix III.

C. PERMITS AND NOTIFICATIONS:

- 1. All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for ACM, as required for transporting of waste ACM to a disposal site.
- 2. The Contractor is responsible for obtaining any demolition, building, renovation, SESC, right-of-way (ROW), or other permits and notifications, and for paying application fees and scheduling inspections, if any, where required by State or Local jurisdictions
 - a. Permits include, but are not limited to the following:

Permit	Cost	Performance Guarantee
Washtenaw County Building Permit	TBD	N/A
Washtenaw County SESC Permit	\$160.00	\$500.00
Scio Township Notification Form	\$50.00	N/A

- 3. All necessary permits or certificates of inspection 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.

D. ENVIRONMENTAL REQUIREMENTS

- 1. 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.
- 2. The Contractor and its Subcontractors/Suppliers must comply with Due Care requirements as stated in the *Due Care Plan* prepared by The Mannik and Smith Group, Inc. dated January 17, 2014. A copy of the Due Care Plan in included in Appendix II.

E. LICENSES:

1. Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

F. POSTING AND FILING OF REGULATIONS

1. Post all notices (including permits) required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standards. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

G. SUBMITTALS:

1. Before Start of Work: At the request of the City or its authorized agent, submit the following for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent.
 - a. Permits, Licenses, and Certificates: Submit copies of current valid permits required by state and local regulations.
 - b. Notices: Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.
 - c. Licenses: Submit copies of all State and local licenses and permits necessary to carry out the Work of this contract.

VIII. REFERENCES

A. GENERAL:

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.

IX. SPECIAL PROJECT PROCEDURES

A. GENERAL:

1. The Contractor must post appropriate construction signs to advise visitors of the limits of construction work areas, hardhat areas, abatement areas, excavations, construction parking and staging areas, etc. 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.
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 the City and its authorized agent 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 Work area by means of woven wire or snow fence having minimum height of four 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: If necessary, 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 Aid:
 - 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.
 - b. Debris Chute: If necessary, the Contractor must use a chute to lower debris resulting from their Work. The chute must be the enclosed type with its discharge directly into the truck or approved container.
 - c. Pumping and Drainage: The Contractor must provide all pumping necessary to keep areas free from water the entire period of Work on the Contract. The Contractor must construct and maintain any necessary surface drainage systems on the Work site so as to prevent water entering existing structures or to flow onto public or private property adjacent to the Agency's land, except for existing drainage courses or into existing drainage systems. The Contractor must prevent erosion of soils and blockage of any existing drainage system.

X. ASBESTOS ABATEMENT SPECIAL PROJECT PROCEDURES

A. GENERAL:

1. The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on DEQ's web site www.michigan.gov/deq under heading Air; then click on Asbestos NESHAP Program. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the LARA at (517) 322-1320 or visit LARA's web site www.michigan.gov/asbestos.
2. The Work of this contract involves activities that will disturb ACMs. Non-friable ACMs, chemicals, refrigerants and universal and other regulated wastes are present at various locations within in vacant residential building. The approximate locations, type, and approximate quantities of these materials known to be present at the worksite is provided in Appendices II. Using the available information contained in these specifications; the Contractor is expected to verify the quantity of ACMs and adjust his bid accordingly. ACMs that are hidden from view and unexpected ACMs, if encountered during demolition preparation or demolition, will also require abatement and shall be considered the Contractor's responsibility.
3. The MDEQ requires that friable ACM and non-friable ACM, that can become friable during demolition, referred to in the regulations as regulated asbestos containing material (RACM), be removed prior to demolition of a building. The RACM includes presumed asbestos containing material (PACM) unless adequate testing demonstrates it is not asbestos.

B. HEALTH RISK:

1. The disturbance or dislocation of ACMs or PACMs may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health risk to workers and building occupants. Apprise all workers, supervisory personnel, Subcontractor's and consultants who will be at the Work site of the risks and proper work procedures which must be followed.
2. Where in the performance of the Work, workers, supervisory personnel, Subcontractor's, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified ACMs; take appropriate continuous measures as necessary to protect all building occupants from the risk of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

C. PERSONAL MONITORING:

1. The City and its authorized agent will not perform air monitoring for the Contractor to meet Contractor's OSHA requirements for personal sampling or any other purpose.

XI. QUALITY CONTROL

A. GENERAL

1. Project Oversight
 - a. The City or its authorized agent will provide Project oversight to document that the Project is completed in accordance with the specifications and approved sheets. The Contractor will notify the City or its authorized agent when each Work task identified in the Contractor's Schedule of Values is completed. The City or its authorized agent will inspect and certify the Work has been completed satisfactorily or provide a punch list of items needed to correct any Work deficiencies.
2. Testing Laboratory Services
 - a. All tests required by the County must fulfill ASTM, ANSI, Commercial and other Standards for testing. The Contractor must submit a minimum of three (3) copies of each test report to the City or its authorized agent for evaluation and subsequent distribution.
 - b. Waste characterization sampling, as required, will be paid for by the Contractor and shall be considered incidental to the Contract.

XII. CONSTRUCTION FACILITIES AND TEMPORARY ENVIRONMENTAL CONTROLS

A. GENERAL

1. The Contractor must furnish and install all temporary facilities and controls required by the Work and must remove them from site upon completion of the Work, and the grounds and existing facilities must be restored to their original condition.
2. Neither water nor electricity is available at the site.
3. Temporary Sanitary Facilities:
 - a. The Contractor must provide and maintain a sufficient number of portable temporary toilets that comply with all Federal, State, and local code requirements in locations approved by the City or its authorized agent. 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.

4. The Contractor shall provide and maintain methods, equipment, and temporary construction as necessary to provide controls over environmental conditions at the Work site and adjacent areas. Remove physical evidence of temporary facilities at the completion of the Work.
5. Noise Control:
 - a. The Contractor's vehicles and equipment shall be such as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards, applicable local ordinances, and in no case will noise levels be permitted which interfere with the Work of the City or its authorized agent, adjacent property owners, or others.
6. Dust Control:
 - a. The Contractor shall control the formation of dust as required by Federal, State, and local authorities and shall comply with local ordinances related to dust control. In addition to the aforementioned requirements, the Contractor shall control dust formation at the site so the 0.150 milligrams per cubic meter (mg/m³) limit is not exceeded at the limits of the Work shown on the drawings located in Appendix I. If a dust concentration limitation of less than 0.150 mg/m³ is imposed or required by one of the aforementioned authorities, the Contractor shall be responsible for controlling dust formation to the more restrictive limit.
4. Water Control:
 - a. The Contractor shall provide methods to control surface water and water from demolition to prevent damage to the Work, the site, or adjoining properties.
 - b. The Contractor shall control fill, backfilling, and ditching and provide temporary covers required to direct water away from the Work area and to direct drainage to proper runoff courses so as to prevent any erosion, damage, or nuisance.
 - c. The Contractor shall provide, operate, and maintain equipment and facilities of adequate size to control surface water.
 - d. The Contractor shall dispose drainage water and accumulated storm water in a manner to prevent flooding, erosion, contamination, or other damage to a portion of the site or adjoining property and in conformance with all environmental regulations. Water disposal costs shall be the responsibility of the Contractor and shall be considered incidental to the Contract.
5. Pollution Control:

The Contractor shall:

 - a. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from the Work.
 - b. Provide methods, means, and facilities required to prevent vehicles from tracking soil and debris offsite.
 - c. Provide equipment and personnel; perform emergency measures to contain any spillages; and remove soils or liquids contaminated by spills.
 - d. Take special measures to prevent harmful substances from entering public waters.
 - e. Provide systems for control of atmospheric pollutants.
 - f. The Contractor's and sub-contractors equipment used during the Work shall conform to all current Federal, State and local laws and regulations.

XIII. MATERIALS AND EQUIPMENT

A. GENERAL

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
 - a. All materials and equipment delivered to and used to complete the Work must be suitably stored and protected from the elements. The areas used for storage must only be those approved by the City or its authorized agent. After delivery, before and after the Work, the Contractor must protect materials and equipment against theft, injury or damage from all causes. The City assumes no responsibility for stored material. For all materials and equipment, the Contractor must provide complete information on installation, operation and preventive maintenance.
3. The Contractor must cover and protect any bulk materials while in storage which is 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 manufacture'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.
4. 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.
5. The Contractor must certify that any materials stored off-site are:

- a. Stored on property owned or leased by the Contractor.
- 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 sheet 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 site.

XIV. CONTRACT CLOSE-OUT

A. GENERAL

1. Substantial Completion

- a. The Contractor must notify the City or its authorized agent, when the Work will be substantially complete. If the City or its authorized agent agrees that the Work is Substantially Complete, the City or its authorized agent will inspect the Work. The City or its authorized agent will prepare a Punch List and will attach it to the respective Certificate of Substantial Completion upon determining that the Work or a portion of the Work inspected is Substantially Complete. 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 or its authorized agent.

2. Cleaning

a. Regular Cleaning

- i. The Contractor must remove all scrap or removed material, debris or rubbish from the Work site at the end of each working day and more frequently whenever the City or its authorized agent deems such material to be a hazard. No salvage or surplus material may be sold on the premises of the Work. No burning of debris or rubbish is allowed. Any recycled materials must be recycled by the Contractor.

b. Final Cleaning

- i. The Contractor shall maintain all seeded areas until final inspection. Maintenance includes repairing any areas damaged following seeding operations or until permanent erosion control is established and shall be considered incidental to the Contract. Such damaged areas shall be repaired to re-establish the condition of the grade of the area prior to seeding and then be re-seeded.
- ii. Before final acceptance by the City or its authorized agent, the Contractor will leave the Work area in a manner consistent with pre-work conditions. The Contractor will be responsible to make repairs for any damage or blemish that was caused by the Work and shall be considered incidental to the Contract.

DIVISION 02
SPECIFIC REQUIREMENTS

I. MAINTENANCE OF EXISTING CONDITIONS

A. GENERAL

1. Job Conditions

- a. The Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property from damage.
- b. In order to prevent damage, injury or loss; the Contractor's actions shall include, but are not limited to, the following:
 - i. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the work of any other Contractor or utility service company.
 - ii. Provide suitable storage facilities for all materials that are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - iii. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
 - iv. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by Work operations, to the end that at all times the site of the Work shall present a safe, orderly, and workmanlike appearance.
 - v. The restoration of existing property, except for those stated to be demolished elsewhere in this Contract shall be done as promptly as practicable and shall not be left until the end of Work.
 - vi. Protection of trees designated by the City or its authorized agent
- c. The Contractor shall not, except after written consent from proper parties, enter or occupy privately owned land with men, tools, material, or equipment.
 - i. The Contractor shall assume full responsibility for the preservation of all public and private property on or adjacent to the Site. If any direct or indirect damage is done by or on account of any act, mission, neglect, or misconduct in the execution of the Work by the Contractor or its sub-contractors, it shall be restored by the Contractor to a pre-work condition and shall be considered incidental to the Contract.
- d. The Contractor shall allow the City or its authorized agent, other contractors, and public service corporations, or their agents, to enter upon the Work site for the purpose of constructing, maintaining, repairing, removing, altering or replacing such pipes, sewers, conduits, manholes, wires, poles, or other structures and appliances as are not located or as may be required or permitted at or on the Work site by the City or its authorized agent. The Contractor shall cooperate with all aforesaid parties and shall allow reasonable facilities for the prosecution of any other Work by others to be done in connection with this Work. Care shall be taken at all times to inconvenience abutters as little as possible.
- e. Temporary provisions shall be made by Contractor to insure proper functioning of all gutters, sewer inlets, drainage ditches, which shall not be obstructed except as approved by the City or its authorized agent.

II. SOIL EROSION AND SEDIMENTATION CONTROL

A. GENERAL:

1. WORK REQUIRED

- a. The Contractor shall furnish, install, and maintain as long as necessary and remove when no longer required, all necessary engineering controls to prevent erosion and sedimentation of onsite soils as required by, and in accordance with Part 91 of P.A. 451 and any Federal, State, and local soil erosion and sedimentation control permit.
- b. The Contractor shall be responsible for all application fees and all necessary permits for soil erosion and sedimentation control, prior to the commencement of Work.
- c. The Contractor shall provide a State of Michigan Certified Storm Water Operator for Construction Sites to fulfill the requirements for coverage under the State's regulations for storm water discharge from construction sites.

B. PRODUCTS

1. MATERIALS

- a. Material used for permanent and temporary erosion and sedimentation controls shall meet the requirements as described in MDOT's 2012 Standard Specifications for Construction.

A. EXECUTION

1. GENERAL

- a. **Pumping and Drainage:** The Contractor shall provide all pumping necessary to keep the Work area free from water for the duration of the Work. The Contractor shall construct and maintain any necessary surface drainage systems on the Work site so as to prevent water from entering existing structures, flowing onto public or private property adjacent to the site, into existing drainage courses or existing drainage systems. The Contractor shall prevent

erosion of soils and blockage of any existing drainage system, such as storm sewers. The related costs shall be considered incidental to this Contract.

- b. The Contractor shall design and construct temporary terrain features such as slope and drainage ways to minimize erosion potential of the exposed site, based on the soil type, time of year, proximity to water ways and surface water, duration of exposure, length and steepness of the slope, and the anticipated volume and intensity of runoff.
- c. The Contractor shall minimize the surface area of un-stabilized soils left unprotected and vulnerable to runoff and wind at all times.
- d. The Contractor shall minimize the amount of time that un-stabilized areas are exposed to erosive forces.
- e. When possible, the Contractor shall protect and shield exposed soil areas with live vegetation cover, or other approved erosion resistant material during the temporary and permanent control periods of Work.
- f. The Contractor shall avoid concentrating runoff. When concentrated runoff cannot be avoided, runoff velocities shall be reduced to non-erosive velocities.
- g. Eroded sediments will be trapped onsite with temporary and permanent barriers, basins, or other sediment retention devices, while allowing for controlled discharge of runoff waters at non-erosive velocities.
- h. The Contractor shall implement a continuous inspection and maintenance program.
- i. The Contractor shall implement and follow the SESC Plan and any other applicable requirements and regulations for the duration of the Work.
- j. The Contractor shall be responsible for notifying the appropriate agencies, upon completion of Work, that the SESC Permit and coverage under the State's General Storm Water Permit for Construction Sites are no longer needed and should be terminated. This notification shall be made in writing and a copy of the notification shall be submitted to the City or its authorized agent.

2. REMOVAL

- a. The Contractor shall removal all materials used for temporary soil erosion and sedimentation control form the site, upon completion of site activities.

III. WORKER PROTECTION

A. GENERAL

1. DESCRIPTION OF WORK:

- a. This section describes the equipment and procedures required for protecting workers against asbestos and lead contamination and other workplace hazards except for respiratory protection.

B. WORKER TRAINING:

1. AHERA Accreditation: All workers are to be accredited as Abatement Workers as required by the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C) and the requirements set forth by the LARA.
2. OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER). All workers are required to be certified 40 hour HAZWOPER trained (29 CFR 1910.120 (e)).
3. State and Local Requirements: All workers are to be trained, certified and accredited as required by the requirements set forth by the LARA.

C. MEDICAL SURVEILLANCE:

1. Provide a medical surveillance program in accordance with OSHA standard (29 CFR 1926.1101) and requirements set forth by the LARA.
2. Provide a medical surveillance program and physician's opinion before a respirator is assigned as required by 29 CFR 1910.134 and 29 CFR 1926.103(e)(10) and the requirements set forth by the LARA.
3. Provide medical examination that as a minimum meets OSHA requirements as set forth in 29 CFR 1926.1101 and the requirements set forth by the LARA. In addition, require that the physician provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

D. EQUIPMENT

1. PROTECTIVE CLOTHING:

- a. Provide and require the use of protective clothing for ACM abatement and lead-impacted soil removal activities as required by OSHA and the requirements set forth by the LARA.
- b. Provide and require the use of protective clothing for other non-ACM abatement activities as required by OSHA and the requirements set forth by the LARA.

E. SIGNS:

1. Post an approximately 20-inch by 14-inch manufactured caution sign at each entrance to the asbestos-containing Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:
 - a. Provide signs in both English and Spanish.
 - b. Legend:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA
 - c. Provide spacing between respective lines at least equal to the height of the respective upper line.
2. Post an approximately 10-inch by 14-inch manufactured sign at each entrance to each Work Area displaying the following legend with letter sizes and styles of a visibility at least equal to the following:
 - a. Provide signs in both English and Spanish.
 - b.

Legend	Notation
NO FOOD, BEVERAGES OR TOBACCO PERMITTED	$\frac{3}{4}$ -inch Block
ALL PERSONS SHALL DON PROTECTIVE CLOTHING (COVERINGS) BEFORE ENTERING THE WORK AREA	$\frac{3}{4}$ -inch Block
ALL PERSONS SHALL SHOWER IMMEDIATELY AFTER LEAVING WORK AREA AND BEFORE ENTERING THE CHANGING AREA	$\frac{3}{4}$ -inch Block

F. EXECUTION

1. GENERAL:
 - a. Provide worker protection as required by the most stringent OSHA, LARA, and/or USEPA standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.
 - b. Each time Work Area is entered remove all street clothes in the Changing Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.
2. DECONTAMINATION PROCEDURES:
 - a. Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area:
 - b. Type C Supplied Air or Powered Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:
 - i. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
 - ii. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:
 - iii. Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.
 - iv. With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.
 - v. Take a deep breath; hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.
 - vi. Carefully wash face piece of respirator inside and out.
 - c. If using PAPR: shut down in the following sequence, first cap inlets to filter cartridges and then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.
 - i. Shower completely with soap and water.
 - ii. Rinse thoroughly.
 - iii. Rinse shower room walls and floor prior to exit.
 - iv. Proceed from shower to Changing Room and change into street clothes or into new disposable work items.
 - d. Air Purifying-Negative Pressure Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area with a half or full face cartridge type respirator:

- i. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the Equipment Room.
- ii. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid asbestos fibers while showering. The following procedure is required as a minimum:
 - 1) Thoroughly wet body from neck down.
 - 2) Wet hair as thoroughly as possible without wetting the respirator filter if using an air purifying type respirator.
 - 3) Take a deep breath, hold it and/or exhale slowly, complete wetting of hair, thoroughly wetting face, respirator and filter (air purifying respirator). While still holding breath, remove respirator and hold it away from face before starting to breath.
 - 4) Dispose of wet filters from air purifying respirator.
 - 5) Carefully wash face piece of respirator inside and out.
 - 6) Shower completely with soap and water.
 - 7) Rinse thoroughly.
 - 8) Rinse shower room walls and floor prior to exit.
 - 9) Proceed from shower to Changing Room and change into street clothes or into new disposable work items.
- e. Remote Shower: The procedures above are to be used if the decontamination facility is used as a remote shower. If a worker cannot gain direct access to the Equipment Room require that he enter Decontamination Unit and proceed directly through Shower Room to Equipment Room. Decontamination procedure is then completed as required above.
- f. Within Work Area: Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, drink or smoke, workers shall follow the procedure described above and then dress in street clothes before entering the non-Work Areas of the building.

IV. RESPIRATORY PROTECTION

A. GENERAL

1. DESCRIPTION OF WORK:

- a. Instruct and train each worker involved in asbestos abatement of friable asbestos-containing materials and lead-impacted soil removal activities in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers or particulate matter until the Work Area is completely decontaminated. Use respiratory protection appropriate for the levels encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.

2. DEFINITIONS:

- a. "Negative Pressure Respirator": A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
- b. "Protection Factor": The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
- c. "Respirator": A device designed to protect the wearer from the inhalation of harmful atmospheres.

3. STANDARDS:

- a. Except to the extent that more stringent requirements are written directly into the Contract Documents, the latest edition of the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.
 - i. OSHA U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards Section 29 CFR 1910.1001, Section 1910.134, and Section 29 CFR 1926.1101.
 - ii. CGA Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air".
 - iii. ANSI American National Standard Practices for Respiratory Protection, ANSI Z88.2.
 - iv. NIOSH National Institute for Occupational Safety and Health.
 - v. NIOSH Respirator Decision Logic (May 1987) DHHS/NIOSH Publication No. 87-108; NIOSH/EPA, "A Guide to Respiratory Protection for the Asbestos Abatement Industry" EPA-560-OPTS-86-001 (September 1986); 42 CFR 84, NIOSH Standard for Certification of Non-Powered Air Purifying Respirator filters; 30 CFR 11, NIOSH - Certification of Respirators.
 - vi. MSHA Mine Safety and Health Administration.

- vii. The requirements set forth by the LARA.

B. SUBMITTALS:

1. Before Start of Work: At the request of the City or its authorized agent, submit the following for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent.
 - a. Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly.
 - b. System Diagram: If necessary, when a supplied air respiratory system is required by the work, submit drawing showing assembly of components into a complete supplied air respiratory system. Include diagram showing location of compressor, filter banks, backup air supply tanks, hose line connections in Work Area(s), routing of air lines to Work Area(s) from compressor.
 - c. Operating Instruction: Submit complete operating and maintenance instructions for all components and systems as a whole. Submittal is to be in bound manual form suitable for field use.
 - d. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.1101 and the requirements set forth by the LARA.
 - e. Initial Exposure Assessment: Submit level of respiratory protection intended for each operation required by the project. Base this selection on an "Initial Exposure Assessment" as required by OSHA 29 CFR 1926.1101 and the requirements set forth by the LARA. Submit information to support this "Initial Exposure Assessment" on the form included at the end of this Section.
 - i. Submit data from exposure monitoring for the PEL and EL from prior asbestos jobs within 12 months;
 - ii. Submit monitoring and analysis that were performed in compliance with the OSHA asbestos standard in effect;
 - iii. Submit data that was obtained under workplace conditions "closely resembling" those that will exist during the Work;
 - iv. Submit data from past asbestos jobs where the type of asbestos abatement and other work, material, control methods, work practices, and environmental conditions closely resemble those that will exist during the Work;
 - v. Submit exposure data from prior asbestos jobs where the work that was conducted by employees whose training and experience are no more extensive than that of employees performing the current job;
 - vi. Based on the exposure data from the previous asbestos jobs, select respiratory protection for the Work that will, to a high degree of certainty, prevent worker exposures (inside the respirator) that exceed the PEL set forth in this Section of the specifications.
 - f. Resume information: Submit resume and information on training for individual monitoring the operation of supplied air respiratory systems. Submit training certifications where applicable.
 - g. Submit respirator fit test date, test type and passing certificate.

5. AIR QUALITY FOR SUPPLIED AIR RESPIRATORY SYSTEMS:

- a. Provide air used for breathing in supplied air respiratory systems that meets or exceeds standards set for C.G.A. type 1 (Gaseous Air) Grade H or CSA Z180.1 whichever presents the more stringent quality standard.

6. DELIVERY:

- a. Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

C. EQUIPMENT

1. AIR PURIFYING RESPIRATORS

- a. Respirator Bodies: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit (0 degrees Celsius).
- b. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with 42 CFR Part 84 and ANSI Z228.2. Also, additional cartridge sections may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.
- c. Non-permitted respirators. Do not use single use, disposable or quarter face respirators.

2. SUPPLIED AIR RESPIRATOR SYSTEMS:

- a. Provide equipment capable of producing air of the quality and volume required by the above reference standards applied to the job site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.

- b. Face piece and Hose: Provide full face piece and hose by same manufacturer that has been certified by NIOSH/MSHA as an approved Type "C" respirator assembly operating in pressure demand mode with a positive pressure face piece.
- c. Auxiliary backup system: In atmospheres which contain sufficient oxygen (greater than or equal to 19.5 percent oxygen) provide a pressure-demand full face piece supplied air respirator equipped with an emergency backup HEPA filter.
- d. Escape air supply: In atmospheres which are oxygen deficient (less than 19.5 percent oxygen) provide a pressure-demand full face piece supplied air respirator incorporating an auxiliary self-contained breathing apparatus (SCBA) which automatically maintains an uninterrupted air supply in pressure demand mode with a positive pressure face piece.
- e. Backup air supply: Provide a reservoir of compressed air located outside the Work Area which will automatically maintain a continuous uninterruptible source of air automatically available to each connected face piece and hose assembly in the event of compressor shut-down, contamination of air delivered by compressor, power loss or other failure. Provide sufficient capacity in the back-up air supply to allow a minimum escape time of one-half hour times the number of connections available to the Work Area. Air requirement at each connection is the air requirement of the respirators in use plus the air requirement of an average-sized adult male engaged in moderately strenuous activity.
- f. Warning device: Provide a warning device that will operate independently of the building's power supply. Locate so that alarm is clearly audible above the noise level produced by equipment and work procedures in use, in all parts of the Work Area and at the compressor. Connect alarm to warn of:
 - i. Compressor shut down or other fault requiring use of backup air supply.
 - ii. Carbon Monoxide (CO) levels in excess of 5 PPM/V.
- g. CO Monitor: Continuously monitor and record on a strip chart recorder CO levels. Place monitors in the air line between compressor and back-up air supply and between backup air supply and workers. Connect monitors so that they also sound an alarm as specified under "Warning Devices".
- h. Compressor Shut Down: Interconnect monitors, alarms and compressor so that compressor is automatically shut down and the alarms sound if any of the following occur:
 - i. CO concentrations exceed 5 PPM/v in the air line between the filter bank and backup air supply.
 - ii. Compressor temperature exceeds normal operating range.
- i. Compressor Motor: Provide a compressor driven by an electric motor. Do not use a gas or diesel engine to drive compressor. Insure that electrical supply available at the work site is adequate to energize motor.
- j. Compressor Location: Locate compressor outside of building in location that will not impede access to the building, and that will not cause a nuisance by virtue of noise or fumes to occupied portions of the building.
- k. Air Intake: Locate air intake remotely from any source of automobile exhaust or any exhaust from engines, motors, auxiliary generator or buildings.
- l. After-Cooler: Provide an after-cooler at entry to filter system which is capable of reducing temperatures to outside ambient air temperatures.
- m. SCBA: Configure system to permit the recharging of 2 hour 2260 PSI SCBA cylinders.

D. EXECUTION

1. GENERAL:

- a. Respiratory Protection Program: Comply with ANSI Z88.2 "Practices for Respiratory Protection", OSHA 29 CFR 1910.314 and 1926.103, and the requirements set forth by the LARA.
- b. Require that respirators be used in the following circumstances:
 - i. During removal of lead-impacted soil activities.
 - ii. During all Class I asbestos jobs.
 - iii. During all Class II work where the ACM is not removed in a substantially intact state.
 - iv. During all Class II and III work that is not performed using wet methods.
 - v. During all Class II and III asbestos jobs where the employer does not produce a "negative exposure assessment".
 - vi. During all Class III jobs where TSI or surfacing ACM or PACM is being disturbed.
 - vii. During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.
 - viii. During all work covered by this section where employees are exposed above the OSHA PEL (TWA, or excursion limit).
 - ix. During emergencies where the airborne asbestos fiber concentration is not known, a SCBA must be used.
- c. Require that respiratory protection be used at all times that there is any possibility of disturbance of ACM whether intentional or accidental.

- d. Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy.
- e. Regardless of Airborne Fiber Level, require that the minimum level of respiratory protection used be half-face air-purifying respirators with high efficiency filters.
- f. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

2. FIT TESTING:

- a. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training set up and administered by an individual qualified to do fit testing. Fit types and sizes of respirator to be actually worn by each individual. Allow an individual to use only the respirators for which training and fit testing was provided.
- b. On a Weekly Basis, check the fit of each worker's respirator by having irritant smoke blown onto the respirator from a smoke tube.
- c. Upon Each Wearing: Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2.

3. TYPE OF RESPIRATORY PROTECTION REQUIRED:

- a. General: After reducing airborne asbestos levels to the lowest feasible level with engineering controls and work practices, provide respiratory protection as necessary to ensure that workers are not exposed to an airborne concentration of asbestos in excess of the Specified Permissible Exposure Limits (SPEL) set forth in this Section.
- b. Level of Respiratory Protection: Determine the proper level of respiratory protection by dividing the expected or actual airborne fiber count in the Work Area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the SPEL set forth in this Section is the minimum level of protection allowed.
- c. Specific Respiratory Protection Requirements: Provide respiratory protection as indicated below as a minimum requirement:
 - i. Half-face Negative Pressure Air-Purifying Respirators: Provide half-face negative pressure air-purifying respirators during installation of Critical or Primary Barriers or other activities where there has been an "Initial Exposure Assessment" that has determined that airborne asbestos fiber levels will not exceed 0.1 fiber per cubic centimeter (0.1 f/cc). Provide a PAPR where a half-face negative pressure air-purifying respirator is allowed to any worker who so requests.
 - ii. Provide PAPR during removal of asbestos-containing TSI or surfacing material where there has been an "Initial Exposure Assessment" that has determined that airborne asbestos fiber levels will not exceed 1.0 f/cc.
 - iii. Type "C" Supplied-air respirators: full face piece pressure demand supplied air respirators are to be used by all workers engaged in the removal of TSI or surfacing materials, or demolition of pipes, structures, or equipment covered or insulated with asbestos, or in the removal or demolition of asbestos insulation or coverings, or any other activity which results in or may result in airborne asbestos fiber levels above 1.0 f/cc.
- d. Provide a full face piece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus for all workers within a regulated area where Class I work is being performed and for which an initial exposure assessment has not been produced. After an initial exposure assessment is made, use the level of respiratory protection required by that assessment and requirements of this specification and the OSHA Asbestos Construction Standard 29 CFR 1926.1101.

4. SPECIFIED PERMISSIBLE EXPOSURE LIMITS:

- a. Ensure that no worker is exposed to an airborne concentration of asbestos in excess of the TWA limit, and Excursion Limit (EL) set forth below.
 - i. TWA limit - Concentration of airborne asbestos fibers to which any worker may be exposed as an eight (8) hour TWA shall not exceed 0.01 f/cc.
 - ii. EL concentration of airborne asbestos fibers to which any worker may be exposed as averaged over a sampling period of thirty minutes shall not exceed 0.1 f/cc.
- b. Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the OSHA Reference Method (ORM), or NIOSH 7400 procedure.
 - i. Electron Microscopy: If Electron Microscopy is used to determine airborne fiber levels, only asbestos fibers will be enumerated, but, if necessary, fibers of any size detected by the testing of decontamination will be counted.

5. RESPIRATORY PROTECTION FACTOR:

- a. Respirator Type Protection Factor
 - i. Air purifying: 10
 - Negative pressure respirator
 - High efficiency filter
 - Half face piece
 - ii. Air purifying: 50

	Negative pressure respirator High efficiency filter Full face piece	
iii.	PAPR Positive pressure respirator High efficiency filter Half face piece	50
iv.	Supplied air: Positive pressure respirator Pressure demand or other positive pressure mode Full face piece equipped with an auxiliary HEPA cartridge or positive pressure SCBA for escape	1,000

6. AIR PURIFYING RESPIRATORS:

- a. Negative pressure - half or full face mask: Supply a sufficient quantity of respirator filters approved for asbestos, so that workers can change filters during the work day. Require that respirators be wet-rinsed, and filters discarded, each time a worker leaves the Work Area. Require that new filters be installed each time a worker re-enters the Work Area. Store respirators and filters at the job site in the changing room and protect totally from exposure to asbestos prior to their use.
- b. Powered air purifying - half or full face mask: Supply a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords, and be washed each time a worker leaves the Work Area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

7. SUPPLIED AIR RESPIRATOR:

- a. Air Systems Monitor: Continuously monitor the air system operation including compressor operation, filter system operation, backup air capacity and all warning and monitoring devices at all times that system is in operation. Assign an individual, trained by manufacturer of the equipment in use or by a Certified Industrial Hygienist, in the operation and maintenance of the system to provide this monitoring. Assign no other duties to this individual which will take him away from monitoring the air system.

DIVISION 03

SITE WORK

I. CLEARING AND GRUBBING AND TREE REMOVAL

A. GENERAL

1. Clearing and Grubbing
 - a. Unless specifically indicated on the Sheets located in Appendix I, trees and shrubs are not to be removed unless required by the Work and/or with the express permission of the City or its authorized agent. For the purposes of this section, trees shall be considered as those having a trunk diameter of three inches (3") and greater measured at a height of three feet (3') above the ground.
 - b. Where trees are to be removed, the Contractor shall remove such trees and stumps to a depth of at least one (1) foot below the proposed finish grade. All stumps, logs, branches and debris shall be removed from the site and disposed of by the Contractor. All clearing and grubbing necessary to access the site and complete the Work shall be considered incidental to the Contract
 - c. Clearing and grubbing shall consist of removing all debris, large stones, dead and fallen trees, and sticks objectionable material from within the Work areas, or other areas that may be indicated on the sheets which interferes with the work.
 - d. All vegetation such as weeds, grass, shrubbery, roots, and stumps and debris such as broken concrete and trash shall be removed. Trees, shrubbery, lawns, and other vegetation adjacent to the work that is not to be removed and shall be protected from injury or damage resulting from Contractor's operations.
2. Disposal
 - a. Materials resulting from clearing and grubbing operations and that are not to be salvaged or otherwise used shall be disposed of outside the Work limits at an appropriate site and at the expense of Contractor.

II. WELL AND SPETIC SYSTEM ABANDONMENT

A. GENERAL

1. Description
 - a. The Work to be done shall consist of furnishing all labor, materials, and equipment for the complete and satisfactory plugging of a water supply well and crock well located on the site.
 - b. The Work to be done shall consist of furnishing all labor, materials, and equipment for the complete and satisfactory abandonment of two (2) septic systems located on the site.

B. REGULATORY REQUIREMENTS

1. The Contractor shall comply with *Part 127 of the Michigan Public Health Code, 1978 PA 368, as amended* and local regulatory requirements related to the Work summarized in this Section.

C. PRODUCTS

1. Plugging materials shall consist of neat cement slurry for the water supply well and bentonite pellets or chips and MDOT Class II Sand and bentonite pellets or chips for the crock well.
 - a. Per State of Michigan Requirements, "*bentonite grouts; special cements; or other admixtures to the grout material to reduce permeability, increase fluidity, control time of set, or alter the slurry composition in any way, shall not be used.*"

D. EXECUTION

1. GENERAL

- a. The work shall be completed by a licensed water well drilling contractor registered in the State of Michigan who shall comply with all federal, state, and local laws and ordinances relating to performance of the work.
- b. Prior to plugging the water supply well, the Contractor shall make appropriate measurements to verify well depth and diameter in order to calculate the necessary amount of plugging material. The contractor shall remove the concrete block and surrounding housing and all materials from within water well which may hinder its proper abandonment. Materials that may be encountered are as follows: pump, drop-pipe, pump rod, packer, wire, check valve, and other debris or obstructions.
 - i. The Contractor shall cut the water well supply casing one (1) foot below the ground surface.
 - ii. The neat cement slurry shall be placed into the water well by pumping down a tremie pipe of at least one-inch inside diameter which has been placed to the bottom of the well to avoid segregation or dilution of sealing materials. The slurry shall be applied in one continuous operation until the abandoned water well is filled. The tremie pipe shall be submerged in the neat cement slurry at all times during placement. The Contractor shall be responsible for determining the amount of neat cement slurry required to plug the abandoned water well.

- c. Prior to plugging the crock well, the Contractor shall make appropriate measurements to verify well depth and diameter in order to calculate the necessary amount of backfill material. The contractor shall remove all materials from within crock well which may hinder its proper abandonment. Materials that may be encountered are as follows: pump, drop-pipe, pump rod, packer, wire, check valve, and other debris or obstructions.
 - i. The Contractor shall place a layer of bentonite chips or bentonite pellets that is not less than six (6) inches thick at the bottom of the well. The remainder of the well shall be plugged by placing MDOT Class II Sand in layers that are not more than 10 feet thick, with a layer of bentonite chips or bentonite pellets that is not less than six (6) inches thick placed on top of each clean soil backfill layer.
 - ii. The uppermost three (3) to four (4) foot section of stone or other curbing material that supports the well bore shall be removed. Before backfilling the well up to the ground surface, a layer of bentonite chips or bentonite pellets that is not less than 6 inches thick shall be placed.
 - iii. Upon completion of abandonment activates associated with the crock well, the Contractor shall provide a minimum of four (4) inches of approved, clean topsoil over the backfilled area and provide seed and mulch as specified in Section XIV, Site Restoration.
- d. The Contractor shall maintain a complete and accurate record of the plugging operations. The information to be recorded shall include the type of plugging material used, volume of material used, and method of placing plugging material into the well. Such written record shall be available for inspection on site at the request of the City or its authorized agent. The completed well plugging report shall be submitted to City or its authorized agent, the local health department, and to the MDEQ within 60 days of completion of the well abandonment operation.
- e. Disconnect existing septic system from the vacant residential building and subsequent removal and disposal of the septic system, including two (2) tanks. Closure of the septic system will include removal of system liquids and sludge and proper off-site disposal by a licensed liquid waste hauler. Upon removal of contents, the two (2) tanks will be crushed-in-place, backfilled, and restored to match surrounding conditions.

III. RESILIENT FLOORING REMOVAL – AGGRESSIVE ASBESTOS ABATEMENT

A. GENERAL:

1. REGULATORY ABATEMENT METHOD OPTION

- a. All friable asbestos containing ACM and non-friable ACM that can become friable during demolition must be removed prior to demolition. Category I ACM includes asbestos-containing packing; gaskets, resilient floor coverings and mastics, and asphalt roofing products. Category I ACM such as the floor tile and mastic materials will require removal prior to demolition. The resilient flooring or mastic demolition debris must be disposed as a regulated asbestos material.

B. SUBMITTALS:

1. Before Start of Work: At the request of the City and/or its authorized agent, submit the following for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or it authorized agent.
 - a. Wetting Materials: Submit product data, use instructions and recommendations from manufacturer of wetting material (surfactant and/or removal encapsulant) intended for use. Include data substantiating that material complies with requirements.
 - b. NESHAP Compliance Documentation: Submit manufacturer's documentation for removal encapsulants proposed for use that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will comply with the wetting requirements of NESHAP Asbestos Regulations (40 CFR 61, Subpart M).
 - c. NESHAP Compliance Documentation: Submit written approval from the EPA NESHAP Coordinator, in compliance with applicable requirements of NESHAP Asbestos Regulations (40 CFR 61, Subpart M), for the use of shot/bead blast equipment for adhesive removal.
 - d. Plan of Action for Dry Ice Use: Submit a plan of action as required by this section for protection of workers from carbon dioxide and cold hazards associated with use of dry ice. Testing and protective measures proposed are to be certified by a Certified Industrial Hygienist (CIH).
 - e. Adhesive Removal Solvent: Submit product data, use instructions and recommendations from manufacturer of adhesive removal solvent intended for use. Include data substantiating that material complies with requirements.
2. Before Start of Work: At the request of the City and/or its authorized agent, submit the following for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or it authorized agent.
 - a. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for all materials proposed for use on the work including:
 - i. Surfactants.
 - ii. Adhesive Removal Solvents.

B. PRODUCTS

1. MATERIALS

- a. Wetting Materials: For wetting prior to disturbance of asbestos-containing materials, the Contractor will submit to the City or its authorized agent the intended wetting agent. Do not begin work until this submittal is returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent. Choices include:
 - i. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five (5) gallons of water.
 - ii. Removal Encapsulant: Provide a penetrating-type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the asbestos-containing material and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five (5) gallons of water.
 - iii. Dishwashing detergent that contains anionic, nonionic, and amphoteric surfactants.
- b. Tile Adhesive Removal Solvent: Provide a slow-drying solvent intended to remove tile adhesive. Provide material that is not flammable, does not create combustible vapors and has no significant inhalation hazard. For Tile Adhesive Removal Solvent, the Contractor will submit to the City or its authorized agent the intended solvent proposed. Do not begin work until this submittal is returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent.
- c. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6-mil thick, clear, frosted, or black as indicated.
- d. Duct Tape: Provide duct tape in 2-inch or 3-inch widths as indicated, with an adhesive formulated for use on sheet polyethylene.
- e. Spray Cement: Provide, in aerosol cans, spray adhesive which is formulated for use on sheet polyethylene. Provide materials that do not contain methylene chloride.
- f. Disposal Bags: Provide 6-mil thick leak-tight polyethylene bags labeled as required by Section X, Disposal of Regulated Asbestos-Containing Material.
- g. Fiberboard Drums: Provide heavy duty leak-tight fiberboard drums with tight sealing locking metal tops.
- h. Steel Drums: Provide leak-tight steel drums with tight-sealing locking metal tops.
- i. Injection Molded Plastic Drums: Provide leak-tight injection-molded plastic drums with tight sealing locking tops.
- j. Paper board Boxes: Provide heavy-duty corrugated paperboard boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.
- k. Polyethylene Boxes: Provide heavy-duty polyethylene boxes. Provide leak-tight boxes or boxes in sizes that will easily fit in disposal bags.

2. PRIMARY RESILIENT FLOORING REMOVAL EQUIPMENT

- a. Manual Spades:
 - i. Hand operated scraper/chisels with long handles and replaceable blades for removal of resilient flooring.
- b. Powered Spades:
 - i. Long-handled scraper/chisels used in a full-standing position that have replaceable blades and are pneumatically or electrically-powered to move in a reciprocating (in and out) motion.
 - ii. Provide powered spades that are equipped with pneumatic vents and piston seals that prevent compressed air or blow by from sweeping floor.

3. THERMAL EQUIPMENT WITH AUTOMATIC CONTROL:

- a. Thermal Equipment with Automatic Control:
 - i. Equipment utilizing controlled infrared radiant heat to make the resilient floor tiles and adhesive soft and pliable for removal.

4. HIGH PRESSURE WATER JET:

- a. High Pressure Water Jet
 - i. Tools using very high pressure water jets to hydraulically lift tiles.

5. OTHER TECHNOLOGIES NOT APPLICABLE TO THE WORK:

- a. Rotary Cutters:
 - i. Machine with rotating discs facing flat against the floor with spring-loaded cutters that follow the profile of the floor and removes soft resilient materials by cutting them into thin strips and scraping them from the floor.
- b. Rotary Grinders/Surfacers:
 - i. Machine with discs facing flat against floor that removes hard materials with grinding action.
- c. Surfacers/Planers/Scarifiers:
 - i. Machine with a series of small cutters freewheeling on axles mounted on a drum so that the cutters contact the floor surface with a flailing action.
- d. Stripper Machines:
 - i. These are walking units with blades at the front, driven by electric motors, and move either in a reciprocating (in and out) or an oscillating orbital motion.

C. EXECUTION

1. SEQUENCE

- a. Comply with the following sections during all phases of this work:
 - i. Division 02, Section II Worker Protection
 - ii. Division 02, Section III Respiratory Protection

2. RESILIENT FLOOR COVERINGS:

- a. Preparation: Prior to beginning the removal of any resilient floor covering complete the following:
 - i. Remove appliances and furniture from the work area.
- b. Seal Floor Penetrations: Before using wet methods to remove resilient flooring, seal openings, and penetrations in the floor to prevent water leakage.
 - i. Remove surface mounted junction boxes (doghouses) from raceway system.
 - ii. Remove hatch and trench covers that are covered with resilient flooring. Seal opening with plywood. Seal edges of plywood to floor with urethane foam caulk. Remove resilient flooring from cover in a later operation during wet removal of flooring. Seal openings with a wooden or plywood plug. Seal with urethane foam caulk.
 - iii. Remove flooring material in the immediate area of floor penetrations with a hand spade or scraper.
 - iv. Remove adhesive by hand scraping as necessary to permit installation of seals.
 - v. Remove any adhesive residue from slab where cover on openings and penetrations must seal to floor to accomplish a water tight assembly. Remove this residue by abrasion using dampened, clean, sharp, cutting sand and a hand-held rubbing stone as necessary. Use minimum wetting required to permit removal. Use caution to prevent water leakage into opening or penetration.
 - vi. Cover sealed plywood hatch assemblies with 6-mil sheet plastic. Seal plastic to floor with spray glue or urethane caulk.
 - vii. Cover sealed openings with sheet plastic. Seal plastic to floor with spray glue or urethane caulk.
- c. Remove Resilient Flooring: Use the five-step process described in the following sections:

1. STEP ONE - REMOVAL OF RESILIENT TILE FLOOR COVERING:

- a. Remove resilient tile floor covering using the following procedure:
 - i. Remove binding strips or other restrictive molding from doorways, walls, etc. clean and dispose of as non-asbestos waste. Dispose of any materials that have glue or floor mastic on them as asbestos-containing waste.
 - ii. Wet Floor:
 - a) Wet floor with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Cover with sheet polyethylene to allow humidity to release tile from floor. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
 - b) Keep floor continuously wet throughout removal operation.
 - c) Remove tiles using a manual or powered spade, or stripping machine. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor where tile has been removed continuously wet until after completion of heavy adhesive residue removal.
- b. Debris and Waste
 - i. Dispose of Category I non-friable waste in accordance with State and Local Regulations.

2. STEP TWO - REMOVAL OF ADHERED SHEET RESILIENT FLOORING:

- a. Use the following procedure to remove adhered resilient sheet flooring completely:
 - i. Wet Floor
 - a) Wet floor with amended water, removal encapsulant, or detergent solution so that entire surface is wet. Do not allow to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions.
 - b) Keep floor continuously wet throughout removal operation.
 - c) Remove wear layer using a manual or powered spade. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor where wear layer has been removed continuously wet until after completion of heavy residue removal.
 - d) Remove wear layer using a manual or powered spade. Add additional dry foam powder and wet as necessary to maintain 1-inch of foam during the entire removal process. Maintain layer of foam on floor where the wear layer has been removed until after completion of heavy adhesive residue removal.
 - ii. Debris and Waste:
 - a) Dispose of all friable materials in accordance with Section X, Disposal of Regulated Asbestos-Containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
- b. Manual Removal:
 - i. Make a series of parallel cuts, with a knife, 4-inches to 8-inches apart parallel to the wall, keeping cut lines wet.
 - ii. Start at the end of the room farthest from the entrance door. This will help avoid tracking of debris from the removal operation. Pry up the corner of the first strip, separating the backing layer. As the strip is being removed, spray a constant mist of the detergent solution into the delamination nip point to minimize any airborne dust particles. When done properly, any felt remaining on the floor and on the back of the strip will be thoroughly wet. Peel the strip either by pulling upward at an angle that permits the best separation or by rolling around a core.
 - a) **PRECAUTION:** Resilient flooring becomes slippery when wet with, amended water, removal encapsulant, or a detergent solution. Use caution to contain the solution in the immediate work area. Stand on a new sheet of plywood or non-slip surface while working on wet surfaces.
- c. Debris and Waste:
 - i. Dispose of all friable materials in accordance with Section XI, Disposal of Regulated Asbestos-Containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
- d. Occasionally parts of the foam inner-layer will remain stuck to the backing. This condition can sometimes be eliminated by pulling the strips loose from the opposite end. Peel the foam inner-layer from the floor while spraying the detergent solution into the delamination nip point.
- e. Some resilient flooring is not readily strippable by hand. When these conditions are encountered, a sharp stiff blade scraper may be used to assist cleavage of the wear layer from felt. If this procedure is used the distance between cuts should be narrowed to 3-inches to 5-inches wide.
- f. Regardless of whether stripping of the wear surface is accomplished by hand peeling alone or with the assistance of a stiff blade scraper, amended water, removal encapsulant or detergent solution must be sprayed into the delamination nip point to minimize any airborne dust particles.
- g. Keep floor where wear layer has been removed continuously wet until after completion of heavy residue removal.

3. STEP THREE - REMOVAL OF HEAVY RESIDUE OF ADHESIVE:

1. Remove the heavy residue of adhesive left after removal of resilient tile flooring using the following procedure.
 - a. Dampen Floor
 - i. Dampen floor by misting with amended water, removal encapsulant, or detergent solution so that entire surface is wet. Do not allow to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions.
 - ii. Keep floor continuously damp throughout removal operation.
 - b. Adhesive Removal:
 - i. Begin removal at a point farthest from the entrance to the work area. Work of this step may proceed concurrently with work of removal of tile.
 - c. Disposal and Debris
 - i. Dispose of all friable materials in accordance with Section X, Disposal of Regulated Asbestos-Containing Material. Dispose of Category I non-friable waste in accordance with State and Local Regulations.
 - d. Wet vacuum standing water with HEPA wet/dry vacuum.

- i. Mop floor with amended water, removal encapsulant, or liquid detergent solution to remove all debris and residue.
 - ii. Continue the above steps until the adhesive is sufficiently reduced in thickness that it can be effectively removed with shot/bead blast equipment.
 - iii. Wet vacuum standing water with HEPA wet/dry vacuum.
 - iv. Mop floor with amended water, removal encapsulant, or liquid detergent solution to remove all debris and residue.
 - v. Continue the above steps until the adhesive is sufficiently reduced in thickness that it can be effectively removed with shot/bead blast equipment.
4. STEP FOUR - Removal of Residual Backing Material:
 1. Remove any residual felt or rubber backing remaining adhered to the floor after removal of the wear layer of adhered vinyl sheet flooring by using the following procedure:
 - a. Wetting:
 - i. Thoroughly wet residual backing with amended water, removal encapsulant, or detergent solution. Wait a few minutes to allow solution to soak into felt.
 - b. Backing Removal:
 - i. Concrete floors: Use a stiff-bladed scraper or a floor scraper with a replaceable blade to remove the wet backing.
 - ii. Re-wet the backing if the solution has not completely penetrated, if drying occurs or if dry felt is exposed during scraping. Pick up the scrapings as they are removed from the floor and place in a disposal bag or impermeable container.
 - iii. Wood floor: Wet residual felt as above but do not excessively soak or flood wood floors with detergent solution. Excessive water can damage wood floors to the extent that new underlayment could be required. If this occurs, the Contractor will provide new underlayment and shall be considered incidental to this Contract. Use manual scraping only.
5. STEP FIVE - REMOVAL OF ADHESIVE RESIDUE:
 - a. After removal of resilient flooring and any heavy residue of adhesive, mastic, or backing material, in the previous step, remove all residue of adhesive from the floor using the following procedure:
 - i. Allow floor to dry after completion of the wet removal procedures used in previous steps.
 - ii. Begin removal at a point farthest from the entrance to the work area.
 - iii. Remove adhesive residue.
6. ADHESIVE SOLVENT:
 - a. Adhesive: Remove adhesive residue by using adhesive removal solvents. Use solvents in accordance with manufacturers' instructions. Saturate adhesive with removal solvent and allow adhesive to soften. Remove by scraping, wet sanding, or wet scrub with floor cleaning machine with abrasive pad. Provide worker protection as required by the MSDS for any material used.
 - i. Mop floor with removal solvent as required by manufacturer's directions as required to completely remove all residue of adhesive.
 - ii. Clean Floor after completion of removal of ACM by wet mopping with amended water. Mop three times allowing a drying time between each mopping.
 - iii. Encapsulate cleaned floor with one coat of an encapsulant.
 - iv. Dispose of all rags, plastic sheet, etc. in accordance with requirements of Section 02093 Disposal of Regulated Asbestos-Containing Material.
 - b. Decontaminate Equipment: After completion of all work, decontaminate all equipment and machinery used for work of this section.

IV. DISPOSAL OF REGULATED ASBESTOS-CONTAINING MATERIAL

A. GENERAL:

1. DESCRIPTION OF THE WORK:

- a. This section describes the disposal of RACM. Disposal includes packaging of RACM. Disposal is to be accomplished by land filling.

B. SUBMITTALS:

1. Before Start of Work: At the request of the City and its authorized agent, submit the following for review. Do not start work until these submittals are returned with written acknowledgement that the submittals have been received and accepted by the City or its authorized agent.
 - a. Copy of state or local license for waste hauler.
 - b. Name and address of landfill where RACM are to be transported and properly disposed. Include contact person and telephone number.
 - c. Chain of Custody form and form of waste manifest proposed for use.
 - d. Sample of disposal bag and any added labels to be used.
2. On a weekly basis submit copies of all manifests and disposal site receipts to the City and/or its authorized agent.
3. Waste Shipment Record: Maintain a waste shipment record as required by the NESHAP regulation which indicates the waste generator, transporter, and disposal site, and which describes the nature, size, type of container, and form of asbestos waste. Submit to the City and/or its authorized agent within 35 days of departure from buildings.

C. PRODUCTS:

1. MATERIALS

- a. Disposal Bags: Provide 6-mil thick leak-tight polyethylene bags labeled with three labels with text as follows:
 - i. First Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:
**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE FIBERS IS
HAZARDOUS TO YOUR HEALTH**
 - ii. Second Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking (49 CFR parts 171 and 172, Hazardous Substances).
**RQ-ASBESTOS WASTE
CLASS 9
NA2212-PG III**
 - iii. Third Label: Provide the name of the waste generator (Owner's name), the location from which the waste was generated and the names and addresses of the Contractor and transporter. This label must be durable, able to repel dirt and moisture (e.g., permanent marker). Label must be placed directly on disposal bag(s) in a legible format. Peel and stick type labels are expressly prohibited.

D. EXECUTION

3. SEQUENCE

- a. Comply with the following sections during all phases of this work:
 - iii. Division 02, Section II Worker Protection
 - iv. Division 02, Section III Respiratory Protection

2. GENERAL:

- a. All waste is to be hauled by a waste hauler with all required licenses from all State and local authorities with jurisdiction.
- b. Liquid waste: Mix all liquid asbestos-containing waste or asbestos contaminated waste with a bladeable material so that it forms a bladeable (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.
- c. Load all adequately wetted RACM in disposal bags or leak-tight containers. All materials are to be contained in one of the following
 - i. Two 6-mil disposal bags;
 - ii. Two 6-mil disposal bags and a fiberboard drum; or
 - iii. Sealed steel drum with no bag.

- d. Protect interior of truck or dumpster with Critical and Primary Barriers.
- e. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.
- f. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign complying with requirements of the EPA NESHAP regulation (40 CFR Part 61), in a manner and location that a person can read the following legend:

**DANGER
 ASBESTOS DUST HAZARD
 CANCER AND LUNG DISEASE HAZARD
 AUTHORIZED PERSONNEL ONLY**

- g. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.
- h. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as RACM and dispose of in accordance with this specification.
- i. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.
- j. At disposal site unload containerized waste:
- h. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for rebagging.
- i. At a processing site truck and loading dock are arranged as a controlled work area and containerized waste is transferred to storage area by site personnel. All bags including broken ones will be transferred.
- i. Retain receipts from landfill or processor for materials disposed of.
- j. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the City and/or its authorized agent.

V. HAZARDOUS AND UNIVERSAL WASTE MANAGEMENT

A. GENERAL:

1. DESCRIPTION OF THE WORK:

- a. This section describes the removal, segregation, packaging, labeling, transport, and disposal of non-asbestos containing waste materials that are known to exist in the abatement area and the subsequent shipment of properly packaged and labeled waste materials to an approved disposal site.
 - i. The following hazardous and other regulated wastes have been identified at the site, including but not limited to:
 - a) PCB-containing light ballasts, fluorescent light bulbs, mercury-containing thermostats, oil/grease, fuel oil, and other unknown wastes.
 - ii. For additional information regarding the hazardous and other regulated wastes identified at the site, refer to Appendix II.

2. CODES AND REGULATIONS

- a. General Applicability of Codes and Regulations: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes and regulations have the same force and effect and are made a part of the contract documents by reference as if copied directly into the Contract Documents, or as if published copies are bound herewith. Such codes include, but are not limited to, those listed in Section III, Regulatory Requirements.
- b. The Contractor shall hold the City and its authorized agent harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the Contractor the Contractor's employees, or Subcontractor's.

B. SUBMITTALS:

- 1. Before Start of Work the Contractor shall submit documents as required in this Contract.

C. OFF-SITE TRANSPORTATION AND DISPOSAL

1. Work Included:

- a. Obtain approval from disposal facilities.
- b. Ensure that all vehicles entering and leaving the site comply with all safety requirements and licensing requirements of the local, State, and Federal regulations.
- c. Prepare vehicles to prevent spillage or contamination.
- d. Inspect vehicles before leaving the site. The City or its authorized agent may inspect any or all vehicles leaving the site at the City's or its authorized agent's discretion.

- e. Transport equipment for and from the site.
2. Record Documentation.
 - a. The Contractor shall prepare and maintain accurate manifests or bills of lading for each load of waste materials being transported and disposed of. The Contractor is responsible for obtaining a signature from the City or its authorized agent on behalf of the City, on manifests or bills of lading for transportation and disposal purposes.
 - b. The Contractor shall provide to the City or its authorized agent written documentation and records verifying receipt and the quantity received of each load at the disposal facility and verification of proper disposal. Copies of the actual weigh tickets and/or receipts, as applicable, must be provided to the City or its authorized agent.
 3. Testing
 - a. All material shall be sampled and analyzed in accordance with the disposal requirements as directed by the City or its authorized agent. The testing parameters shall be determined based on the potential for presence of the respective contaminants.
- D. PRODUCTS:
1. EQUIPMENT
 - a. The Contractor shall provide equipment, personnel, and facilities necessary to safely remove, handle, and load materials for transport.
 2. MATERIALS
 - a. Disposal Bags: Provide 6-mil thick leak-tight polyethylene bags.
 - b. DOT Hazardous Waste Disposal Drums: Provide DOT 17-H Open -Top Drums (55 gallon) in accordance with DOT regulations title 49 CFR Parts 173, 178, and 179.
 - c. DOT Hazardous Waste Labels: in accordance with DOT regulations Title 49 CFR parts 173, 178, and 179.
- E. EXECUTION
1. GENERAL
 - a. Do not mix waste streams. Where feasible, separate each type of hazardous waste from other types of hazardous wastes, each type of other regulated waste from other types of regulated waste, and asbestos waste from construction waste.
 - b. Segregate, package, label, transport and dispose of hazardous and other regulated waste in accordance with DOT, EPA, State and Local regulations.
 2. WASTE DESIGNATION
 - a. Where not otherwise designated by the City or its authorized agent as known waste or necessary for disposal, characterize all suspect waste products by conducting representative sampling or TCLP testing. All sampling will be coordinated with the City or its authorized agent.
 - b. Representative sampling of waste products will be in accordance with EPA protocols.
 - c. TCLP test analysis will be performed in accordance with EPA Method 1311.
 3. HAZARDOUS AND UNIVERSAL WASTE PACKAGING AND LABELING:
 - a. Package each segregated hazardous and other regulated waste type in accordance with DOT, EPA, State and Local regulations.
 - b. Maintain all containers in a continuously sealed condition after they have been sealed.
 - i. Do not reopen sealed containers.
 - ii. Do not place additional waste in sealed containers.
 4. TEMPORARY STORAGE:
 - a. Partially filled containers of hazardous and other regulated waste may be stored at the work site for intermittent packaging provided that:
 - i. Each container is properly labeled when it is first placed in service;
 - ii. Each container remains closed at all times except when compatible waste types are added;
 - iii. When moved from site to site, each container remains within the geographic boundaries of the facility without moving or crossing public access highways.
- F. RECYCLING AND RECOVERY: Turn over waste which contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include, but are not limited to:
1. Fluorescent light tubes.
 2. Thermostats with mercury switches.
 3. Lead acid batteries

4. Chlorofluorocarbons

G. BACK CHARGES:

1. Where the Contractor fails to fulfill packaging, handling, transport or disposal requirements as outlined herein, the City and its authorized agent will charge back to the Contractor all costs associated with insuring that hazardous wastes are segregated, packaged, transported and disposed of in accordance with all applicable Federal and State regulations.
2. Environmental pollution of the City's property or other environments resulting from the Contractor's hazardous waste management activities will be promptly remediated under the City's or its authorized agent's direction, to the City's sole satisfaction, and at the Contractor's sole expense.
3. The Contractor agrees to either reimburse the City, or reduce the Contract amount by change order to cover all costs associated with waste re-packaging, waste re-segregation, or pollution remediation efforts.

H. REMOVAL OF HAZARDOUS AND OTHER REGULATED WASTES:

1. Immediately seal containers of hazardous waste as each the container is filled. Remove containers of hazardous waste from the work site within seventy-two (72) hours of being filled.
2. Continuously maintain custody of all waste material generated at the work site including security, short-term storage, transportation and disposition until custody is transferred to an approved disposal site or recycling center. Document continuous chain-of custody.
3. The waste shall be transported by certified waste hauler in approved containers.
4. Do not remove, or cause to be removed, hazardous or other regulated waste from the City's property without a legally executed Uniform Hazardous Waste manifest.
5. All transport vehicles shall be cleaned before filling waste material.
6. All haul vehicles are to be inspected for soil adhesion to wheels and under carriage. These soils shall be removed and properly handled by the Contractor before leaving the site. The decontamination procedures shall be carried out at the decontamination zone, if necessary. The City or its authorized agent has the option to approve vehicles before leaving the site. All rinse waters are to be collected for temporary storage prior to disposal. In coordination with the City or its authorized agent, the Contractor will sample collected rinse waters to ensure proper disposal. The Contractor shall be responsible for the disposal and any associated testing and shall be considered incidental to this Contract.
7. Transport vehicles that are leaking or spilling material shall not be allowed to leave the site.
8. All transport vehicles shall be in strict conformance with all applicable Federal, State, and local laws.
9. The Contractor shall keep accurate records for the following information: Type and quantity of materials, including liquids, removed from the site and analytical testing results. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to City or its authorized agent.
10. The Contractor shall provide the City or its authorized agent with copies of the above records, all permits, manifests, waste hauling permits, weigh tickets, and necessary affidavits regarding the waste material, including liquid disposal.
11. Prior to transportation, all of the established pre-transportation requirements shall be met.

I. DISPOSAL

1. All disposals shall conform to Federal, State, and local government regulations. For contaminated wastes, the Contractor shall utilize a State of Michigan approved manifest system so that the waste can be tracked from generation to ultimate disposal. The manifest shall comply with all the provisions of the transportation and disposal regulations. All transporters must sign the appropriate portions of the manifest and must comply with all of the provisions established in the applicable regulations. The Contractor is responsible for obtaining a signature from the City or its authorized agent on behalf of the City, on manifests or bills of lading for transportation and disposal purposes.
2. Contaminated material shall be disposed of at an approved licensed disposal facility.
3. Arrangements for disposal shall be performed by the Contractor.

VI. SECTION 02060 BUILDING DEMOLITION

A. GENERAL:

1. WORK INCLUDED

- a. The vacant residential building and outbuilding structure shall be demolished and removed, including all lower-level concrete floor slabs, subgrade footings, foundations, basements, sub-basements, concrete pads, vaults, pits, and sumps, as specified in this section.
- b. Obtain all permits necessary to perform demolition and related activities.
- c. Disconnect, cap, and/or plug all utilities encountered during the Work.
- d. Remove and recycle or dispose of debris generated by the demolition of the aforementioned building structures, debris within pits, vaults, and or/sumps; miscellaneous site debris; universal and other regulated waste (See Section 02095 Hazardous and Universal Waste Management); and specified and non-specified hazardous materials excluding RACM (See Sections 02080 Removal of Asbestos Containing Materials and 02091 Removal of Asbestos Contaminated Materials)

- i. Recycling or disposal of steel from the building structures is incidental to this Contract. All metals should be recycled when economically feasible. All metals contained in uncontaminated concrete and/or brick shall be recycled when economically feasible.
- e. Perform personnel air monitoring and dust control during the entire period of the demolition and removal operation. The cost for air monitoring and dust control is incidental to this Contract.

B. SUBMITTALS

See Division 01, Section V Submittals for required submittals.

C. GENERAL REQUIREMENTS

1. Rubbish and debris shall be removed from the Work areas daily, unless otherwise directed, to avoid accumulation at the Site. Materials that cannot be removed daily shall be stored in areas specified by the City or its authorized agent. In the interest of safety, the Work shall be performed with regard to the protection of personnel and property.
2. Dust Control and Air Monitoring
 - a. The Contractor shall take all necessary means and procedures to control dust and avoid airborne dust from impacting the surrounding properties as a result of demolition operations.
3. Protection of Personnel
 - a. During demolition operations, the Contractor shall continuously evaluate the conditions of the items being demolished and take immediate action to protect all personnel working in and around the Work areas. No area, section, or component of walls, or other structural elements, excluding foundations, will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while personnel perform other Work in the immediate Work areas. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this Contract.
 - b. All Work shall be performed by workers appropriately trained in accordance with OSHA and MIOSHA requirements.
 - c. Appropriate personal protection equipment (PPE) shall be used by workers during all site work. Specific requirements for PPE shall be provided in the site-specific HASP.
4. Protection of Existing Work
 - a. Before beginning any demolition and removal Work, the Contractor shall carefully inspect the Work areas and examine the drawings and specifications to determine the extent of Work. The Contractor shall take all necessary precautions to ensure against damage to existing features (including, sidewalks, roadways, and trees) that are to remain in place and any damage to such features shall be repaired or replaced, as approved by the City or its authorized agent, solely at the Contractor's expense. 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 support or adding new support, as may be required as a result of any removal or demolition Work performed under any part of this Contract. All additional bracing, shoring, or lateral support shall be considered incidental to this Contract.
5. Ownership
 - a. The Contractor shall have claim to any items or components of items to be demolished as well as debris. The Contractor shall be responsible for the removal and disposal of materials and debris in a fashion that complies with all Federal, State, and local laws and regulations. Ownership of items and materials to be removed by the Contractor does not transfer to the Contractor until such items and materials are physically removed from the site.
1. Sequencing and Scheduling
 - a. The Contractor shall perform Work in such a way so that any RACM, universal and other regulated wastes, or contaminated materials and liquids discovered onsite, or as specified by the City or its authorized agent, shall be removed or cleaned-up prior to demolition or debris removal to protect the safety and health of all personnel. Liquids accumulated in the building shall be removed, transported, and properly disposed prior to demolition of the buildings and, if necessary, shall be managed as required to complete the Work
2. Burning and Explosives
 - a. Burning waste and debris materials and the use of explosives at this site are prohibited.

D. PERMITS AND LICENSING

1. This subsection provides general description of permits required for demolition. The permits described below are not necessarily all of the permits required for completion of the Work. The Contractor shall be responsible for obtaining all required permits, providing all required notices, coordinating all necessary inspections, and all permit fees.
 - a. Permits
 - i. The Contractor shall obtain a Building Demolition Permit from Washtenaw County for the buildings prior to commencing with demolition activities.

- ii. The Contractor shall obtain a Notification Form from Scio Township for the buildings prior to commencing with demolition activities.
- iii. The Contractor shall be responsible for all appropriate notification, filling, fees, and obtaining the Intent to Renovate/Demolish Notification from the MDEQ-AQD a minimum of 10 working days prior to demolition. The notification shall describe the demolition tasks to be conducted and the quantities of ACM proposed for abatement.
- iv. The Contractor shall obtain a right-of-way permit from the appropriate agency when work in a right-of-way is necessary.
- v. The Contractor shall be responsible for applying for and obtaining all necessary SESC permits from the appropriate governing agency.
- vi. All other permits and notices as required by law.

E. PRODUCTS

Not Used

F. EXECUTION

1. General

Furnish all equipment, materials, labor and services necessary to complete all building demolition required in connection with the existing buildings, in order to permit the installation of new Work. The goal of the City is to generate the least amount of waste or debris possible. Any material determined to be inert per R299.4115 may be pulverized for reuse as suitable backfill and placed onsite per the approval of the City and its authorized agent. Inert material and recyclable material that is generated may be salvaged or recycled by the Contractor.

- a. Locations: Notations are made in various places on the Drawings to call attention to building demolition which is required; however, these Drawings are not intended to show each and every item to be removed.
- b. Permits: The Contractor must secure from the appropriate agencies all required permits necessary for proper execution of the Work before starting Work on the site. All fees for securing the permits must be paid by the Contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with the authority granted under the Public Act 1980 PA 371, as amended.
- c. Preparation: Protect all existing Work that is to remain and restore in an approved manner any such Work that becomes damaged.
 - i. Waste and non-inert demolition debris resulting from the Work must be removed from the site by the Contractor for offsite disposal. Recyclable materials may be removed and recycled by the Contractor for offsite reuse or disposal.
- d. Coordination: Demolition work, in connection with any new unit of Work, must not be commenced until all new materials required for completion of that new item of Work are at hand.

2. DUST CONTROL

- a. The Contractor shall employ all necessary engineering controls and misting operations to prevent emission of dust and migration of airborne materials offsite from impacting surrounding properties.
- b. The removal operation shall employ adequate engineering controls and misting operations, so as to prevent visible emissions of dust and migration of airborne materials offsite. Use of water will not be permitted when it will result in, or create hazardous or objectionable conditions such as ice, flooding, pollution, or electrical shock.
- c. If the Contractor wants to temporarily stockpile any demolition debris or materials that may generate dust at the site, the stockpiles shall be staged on asphalt or concrete and covered with 10-mil plastic sheeting per approval of the City and/or its authorized agent.

C. DEMOLITION AND REMOVAL

1. Building Structures

- a. The Contractor shall demolish and remove the buildings in its entirety. Debris identified by the City and/or its authorized agent as characteristically hazardous waste shall be disposed at an approved hazardous waste disposal facility.

2. Utilities

a. Electrical Disconnection

- i. The Contractor shall coordinate with the City and its authorized agent and local utility provider for the shut-off of utilities associated with the buildings and structures to be demolished.
- ii. The Contractor shall verify in writing that onsite electrical wiring entering the building structures to be demolished have been physically disconnected prior to proceeding with demolition operations.

b. Utility Pole Removal

- i. The Contractor shall remove, transport and dispose of a Class 8 or greater utility pole and associated appurtenances.

3. Hazardous Materials

- a. The removal and disposal of hazardous contaminated materials discovered as a result of the demolition activities shall be handled as specified in Division 03, Section V Hazardous and Universal Waste Management. Any other potentially hazardous or contaminated materials not specified which are discovered during demolition and removal operations shall immediately be brought to the attention of the City and its authorized agent.
- b. Materials designated by the City or its authorized agent as characteristically hazardous waste shall be segregated from other debris throughout the demolition and disposal process. The segregated hazardous waste shall be disposed at an approved hazardous waste disposal facility.
- c. The Contractor shall be responsible for preventing mixing of impacted debris and inert materials from regulated listed or characteristic hazardous waste materials. The Contractor is also responsible for preventing non-hazardous materials from coming in contact with materials identified as being hazardous, so as to prevent increasing the volume of hazardous materials.
- d. If necessary, the characteristically hazardous debris may be temporarily stockpiled on plastic (10-mil minimum thickness). The plastic liner shall have a minimum 2-foot wide debris-free perimeter around the stockpiles. The stockpile shall also be completely covered with a double layer of the plastic, taped continuously along all joints and anchored securely to protect against wind and precipitation. Stockpiles shall be sloped to minimize creeping or sloughing of the debris and the Contractor shall clearly mark the hazardous and non-hazardous stockpiles. Diking or other measures shall be used to prevent surface runoff from flowing onto the liners on which the debris is placed. Where several sheets of plastic are necessary to cover or lie on the stockpiles, the edges shall overlap a minimum of two-feet. Once the stockpile has been covered, the debris-free perimeter of the liner shall be secured with concrete block or equivalent. The Contractor, under the direction of the Professional, shall inspect the liners and covers daily for defect and damage. Should any tears, defect, or other damage be found, the Contractor shall replace or repair the damaged plastic sheets and shall be considered incidental to this Contract.

4. Asbestos Containing Materials

- a. The removal and disposal of RACM, as specified in Division 03, Section III Resilient Flooring Removal-Aggressive Asbestos Abatement; and Division 03, Section IV Disposal of Regulated Asbestos-Containing Material, shall be completed prior to beginning demolition Work. Any ACM discovered during demolition activities shall be abated before continuing with demolition operations.

D. RECYCLING

- 1. All metals should be recycled when economically feasible. Steel separated from demolition rubble may be recycled and becomes the property of the Contractor. Any material stockpiled for recycling shall be removed from the site prior to the Contract end date and/or site restoration.

E. CONSTRUCTION WATER RUNOFF CONTROL

1. General

- a. The Contractor shall provide the means, methods, and procedures necessary to collect, remove, and dispose of construction water produced as a result of demolition effort and storm water during the Work duration. In addition, the Contractor shall furnish, operate, and maintain equipment for the control, collection, and disposal of the construction water. Damages arising from the Contractor's inability to properly control construction and storm water shall be repaired by the Contractor and shall be considered incidental to this Contract. Temporary storage areas for potentially contaminated water shall be approved by the City and its authorized agent. Excavations and cavities shall be protected from water infiltration from the Contractor's demolition operations and storm water using a method approved by the City and/or its authorized agent. The Contractor shall be responsible to obtain all appropriate Federal, State, and local permits and provide manifests for the activities performed.

2. Runoff Control

- a. The Contractor shall conduct the Work in such a manner as to limit the flow of runoff (demolition water or precipitation). If necessary, the Contractor shall construct dikes or other barriers to divert runoff to areas approved by the City and/or its authorized agent.

F. DEBRIS DISPOSAL

1. The building structures are required to be demolished and removed and all miscellaneous debris, waste, and unsatisfactory materials resulting from this Work shall be removed from the site, unless otherwise specified in the Contract or by the City and its authorized agent and upon removal shall become the property of the Contractor. All disposals shall conform to Federal, State, and local requirements. All removed materials shall be documented by manifests and disposal facility acceptance tickets, with copies given to the City and/or its authorized agent within two (2) business days after removal from the site.

G. TRAFFIC CONTROL

1. The Contractor shall employ all necessary engineering controls to meet requirements of all ROW permits. Traffic control shall be coordinated with the appropriate authorities. The costs of traffic control shall be considered incidental to this Contract.

H. QUALITY CONTROL

1. 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:
 - a. Electrical disconnection verification.
 - b. Permit compliance and final inspection/acceptance.
 - c. ACM abatement verification.
 - d. Dust control and air monitoring.
 - e. Noise and vibration control.
 - f. Well abandonment.
 - g. Demolition, removal, and cleanup.
 - h. Disposal, recycling, backfill.
 - i. Water management.
 - j. Observance of safety regulations.
 - k. Observance of environmental regulation.

VII. REMOVAL AND DISPOSAL OF HAZARDOUS LEAD-IMPACTED SOILS AND DEBRIS

A. GENERAL

1. Description
 - a. Hazardous lead-impacted soils and debris shall be excavated and disposed of to the extent possible within budgetary constraints. Based on depth of impact, approximately one (1) feet below ground surface (bgs), the City estimates approximately 100 cubic yards of hazardous lead-impacted soils and debris shall be excavated, directly loaded, transported offsite, and properly disposed of at an approved, properly licensed Type I landfill facility, in accordance with all local, State, and Federal solid waste laws and regulations consistent with Part 115 and conditions specified herein. At the discretion of the City or its authorized agent, additional soils or debris may be removed.
 - b. Hazardous lead-impacted soil or debris may be temporarily stockpiled on plastic (10 mil minimum thickness). The plastic liner should have a minimum two-foot wide debris-free perimeter around the stockpiles. The stockpile shall also be completely covered with a double layer of the plastic taped continuously along all joints and anchored securely to protect against wind and precipitation. Stockpiles shall be sloped to minimize creeping or sloughing of the lead-impacted soil or debris and the Contractor shall clearly mark stockpiles as "Lead Containing". Diking or other measures shall be used to prevent surface runoff from flowing onto the liners on which the debris is placed. Where several sheets of plastic are necessary to cover or lay on the stockpiles, the edges shall overlap a minimum of two feet. Once the stockpile has been covered, the debris-free perimeter of the liner shall be secured with concrete blocks or equivalent. The Contractor, under the direction of the City or its authorized agent, shall inspect the liners and covers for defects and damage daily. Should any tears, defects, or other damages be found, the Contractor shall replace or repair the damaged plastic sheets and shall be considered incidental to the contract.
 - c. For bidding purposes, assume that groundwater will not be encountered during excavation activities.
 - d. *Sheet 2, Existing Conditions* and *Sheet 3, Demolition Plan* (Appendix I) depict the general area containing hazardous lead-impacted soils, existing and proposed limits of excavation, surficial debris removal and approximate silt fence and limits of Work.

B. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR Part 1910	Occupational Safety and Health Standards
29 CFR Part 1926	Safety and Health Regulations for Construction
40 CFR Part 260	Hazardous Waste Management
40 CFR Part 261	Identification and Listing of Hazardous Waste
40 CFR Part 262	Standards Applicable to Generators of Hazardous Waste
40 CFR Part 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR Part 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR Part 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
49 CFR Part 171	Department of Transportation Regulations to Stipulate Requirements for Containers and Procedures for Shipment of Hazardous Waste
49 CFR Part 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR Part 173	Shippers General Requirements for Shipment and Packaging
49 CFR Part 177	Carriage by Public Highway
49 CFR Part 180	Rules for Continuing Qualifications and Maintenance of Packaging

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 30	(1990) Flammable and Combustible Liquids Code
NFPA 70 B	(1990) Recommended Practice for Electrical Equipment Maintenance
NFPA 325M	Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids

STATE OF MICHIGAN

PA 451, PART 201	Environmental Remediation
PA 451, PART 111	Hazardous Waste Management Act
PA 451, PART 115	Solid Waste Management Act
PA 451, PART 121	Liquid Industrial Waste Act

C. SUBMITTALS

1. Submittals shall be submitted in accordance with Contract.

D. SAMPLING AND ANALYTICAL TESTING

1. Confirmation soil samples will be collected and submitted for laboratory analysis by the City or its authorized agent.
 - a. Prior to backfilling, the Contractor shall assist the City or its authorized agent with the collection of confirmation samples from the excavation, as directed by the City or its authorized agent. Confirmation sampling and analysis for the excavated area are the City's or its authorized agent's responsibility. The Contractor shall be responsible for assisting in collection and scheduling time needed for the confirmation sampling. Sampling locations, number and specific procedures shall be as determined by the City or its authorized agent. The Contractor's cost associated with assisting the City or its authorized agent with obtaining confirmation samples shall be considered incidental to the Contract.
2. If necessary, waste characterization sampling, as required, will be paid for by the Contractor and shall be considered incidental to the Contract.
 - a. Analytical testing and sampling required for waste characterization shall be performed by a laboratory that routinely provides analytical services acceptable to the MDEQ. Sample collection, shipping, and laboratory analytical costs associated with waste characterization, shall be paid for by the Contractor and shall be considered incidental to the Contract. Confirmation sampling shall be performed and paid for by the City or its authorized agent. It is the Contractor's responsibility to submit sample results for waste characterization, in a timely fashion, to the City or its authorized agent.

E. REGULATORY REQUIREMENTS

1. The Contractor shall comply with all applicable Federal, State, and local regulatory requirements related to the Work summarized in this Section.

F. PRODUCTS

1. SUITABLE FILL AND BACKFILL MATERIALS REQUIREMENTS

- a. Provide a minimum of four (4) inches of approved, clean topsoil over backfilled and graded areas, as directed by the City or its authorized agent.
- b. If requested and approved by the City or its authorized agent, the Contractor shall provide documentation of the off-site source material soil type and non-impact (virgin material or analytical test results) prior to bringing the material on-site. Such documentation may consist of certification from the borrow pit, laboratory analytical reports, or other documentation deemed acceptable by the City or its authorized agent.
- c. Costs for providing off-site sources of approved backfill material shall be the responsibility of the Contractor and considered incidental to the Contract.

2. UNSUITABLE MATERIALS

- a. Unsuitable materials may include:
 - i. Contaminated soils, including but not limited to, soil that is visually or olfactory impacted. The City or its authorized agent shall monitor the excavation filling with a photoionization detector (PID) or flame ionization detector (FID).
 - ii. Soils which cannot be compacted sufficiently to achieve the density specified for the intended use.
 - iii. Materials that contain hazardous or designated waste materials including petroleum hydrocarbons, pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.

G. EXECUTION

1. General

- a. Preparation
 - i. The Contractor shall be responsible for obtaining and providing all required permits. The Contractor shall provide approved containers, vehicles, equipment, labor, labels, manifests and other documents necessary for accomplishment of the Work.
- b. Safety Guidelines
 - i. If encountered, all Work associated with hazardous materials shall be performed at appropriate Personal Protection Level as defined by OSHA as specified in 29CFR 1910.120 and other applicable safety requirements.
 - ii. Personnel conducting the Work shall be trained and made thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this Work. Obligations are set forth in Appendix II.
- c. Control of Work
 - i. The Contractor shall perform the Work in accordance with the requirements of the Sheets and Specifications and shall take direction only from the City or its authorized agent for this contract. Any other party that proposes to give direction to the Contractor shall be immediately referred to the City or its authorized agent.

2. AIR MONITORING

- a. As part of the overall HASP, the Contractor shall monitor air quality at the site, as required, to protect workers and neighbors. The Contractor shall establish action levels for organic vapors, dusts, etc. to protect the health and safety of the employees and other on-site personnel.

3. LOADING, HAULING AND DISPOSAL

- a. Disposal of hazardous lead-impacted soils and debris shall be excavated and disposed of to the extent possible within budgetary constraints. Based on depth of impact, approximately one (1) feet bgs, the City estimates approximately 100 cubic yards of hazardous lead-impacted soils and debris shall be excavated, transported offsite, and disposed of properly at an approved, properly licensed Type landfill facility, in accordance with all local, State, and Federal solid waste laws and regulations consistent with Part 115 and conditions specified herein.
- b. Waste characterization sampling, as required, will be paid for by the Contractor and shall be considered incidental to the Contract.
- c. All haul vehicles are to be inspected for soil or waste adhesion to wheels, under carriage, sides, top, gate, etc. If necessary, these soils shall be removed and properly handled by the Contractor before leaving the Work area. The decontamination procedures shall be carried out at the decontamination zone. All the vehicles may be inspected before leaving the site by the City or its authorized agent. All rinse waters, if necessary, are to be collected for temporary storage prior to disposal. The Contractor shall be responsible for associated testing and disposal for waste characterization and shall be considered incidental to the Contract.
- d. Transport vehicles that are leaking or spilling materials shall not be allowed to leave the site.
- e. All transport vehicles shall be in strict conformance with all the applicable Federal, State, and local laws.

- f. The Contractor shall keep accurate records for the following information: Type and quantity of materials, including liquids, removed from the site and analytical testing results. The City or its authorized agent approval is required before any liquid or solid material leaves the site.
- g. The Contractor shall provide the City or its authorized agent with copies of the above records, all permits required, manifests, waste hauling permits, and necessary affidavit regarding the waste materials, including liquid disposal.
- h. All transport vehicles shall be clean of off-site contamination before filling with waste debris and/or soil.
- i. The waste debris and/or soil shall be transported by a certified waste hauler in accordance with all Federal, State, and local laws.
- j. The City will sign manifests or its authorized agent on behalf of the City.

4. SPILLS

- a. The Contractor is responsible for cleaning up all leaks and spills that occur from containers and other items on-site or off-site. Immediate containment actions shall be taken, as necessary, to minimize the effect of any spill or leak. The Contractor shall notify the City or its authorized agent and appropriate governmental authorities of the incident. Cleanup shall be in accordance with applicable Federal, State and local laws and regulations and costs shall be considered incidental to the Contract.

VIII. BACKFILLING

A. GENERAL:

1. WORK INCLUDED

- a. Contractor shall furnish and place backfill materials as specified by the City and/or its authorized agent.
- b. The Contractor shall backfill the excavation to a depth sufficient to allow site restoration activities to be completed. See Division 03, Section IX – Site Restoration.

B. RELATED SECTIONS

- 1. Division 02, Section I – Maintenance of Existing Conditions
- 2. Division 03, Section VII – Removal and Disposal of hazardous Lead-Impacted Soils and Debris
- 3. Division 03, Section IX – Site Restoration

C. SUBMITTALS

The following shall be submitted in accordance with Division 1, Section V – Submittals:

- 1. Work Plan
- 2. Disposal Documents
- 3. Manifests

D. PROJECT COORDINATION

The Contractor shall carefully coordinate the work in this Section with all other work. The work shall be compliant with OSHA regulations and other applicable safety requirements.

E. PRODUCTS

- 1. Suitable fill and backfill materials requirements
 - a. Backfill material shall consist of clean MDOT class 2 or class 3 sand.
 - b. The backfill material shall be obtained from an off-site source, as needed to complete the backfilling of the excavated area to grade.

F. UNSUITABLE MATERIALS

- 1. Unsuitable materials include the materials listed below:
 - a. Soils from offsite sources that are visually or olfactory impacted.
 - b. Materials that contain hazardous or designated waste materials including petroleum hydrocarbons, pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.
 - c. Topsoil, except as allowed below.

G. EXECUTION

- 1. Preparation
 - a. The Contractor shall take extreme care during the site activities to prevent cross contamination of hazardous or contaminated soil with non-hazardous/non-contaminated soil.
 - b. Personnel working inside and around the excavation area shall be trained and thoroughly familiar with the safety precautions and equipment required for controlling potential hazards associated with this work.

2. Quality Control
 - a. The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to, the following:
 - i. Observance of safety regulations.
 - ii. Quantity and quality of materials, labor, equipment and Work performed.
 - iii. Protection, maintenance, and repair.

IX. SITE RESTORATION

A. GENERAL:

1. Work Included
 - a. Grade and restore the site to match surrounding grade.
 - b. Sheet 3 and Sheet 4, Details (Appendix I) depict the approximate limits of grading and seeding and surface restoration.

B. DESCRIPTION

1. Grade Work areas of the site to match surrounding grade with clean, approved topsoil, as directed by the City or its authorized agent.
2. Any surficial debris unearthed during grading activities shall be removed, transported, recycled and/or properly disposed.
3. The Contractor shall seed graded and backfilled areas with native grasses and forbs with specifications depicted on Sheet 4 and in E. Products, below.
4. The Contractor shall maintain all seeded areas until final inspection. Maintenance includes repairing any areas damaged following seeding operations or until permanent erosion control is established and shall be considered incidental to the Contract. Such damaged areas shall be repaired to re-establish the condition of the grade of the area prior to seeding and then be re-seeded.
5. For bidding purposes, the City estimates that approximately 20,000 square feet will need to be graded and seeded.

C. SUBMITTALS

1. Work Plan
 - a. The Contractor shall prepare and implement a Work Plan as described in this Contract.

D. PROJECT COORDINATION

1. The Contractor shall comply with all applicable Federal, State, and local regulatory requirements related to the Work summarized in this Contract.
2. All Work associated with shall be performed at appropriate Personal Protection Level as defined by OSHA as specified in 29CFR 1910.120 and other applicable safety requirements.
3. Personnel conducting the Work shall be trained and made thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this Work. Obligations are set forth in in Appendix II.
4. The Contractor shall verify on-site utility line locations that are in close proximity to the Work areas. Utility lines may include but are not limited to the following: telephone, cable, electric, water, sewer, and gas lines.

E. PRODUCTS

1. Topsoil shall at a minimum consist of the following:

TEXTURE CLASS PERCENT	TOTAL WEIGHT AVERAGE PERCENT
Sand (0.05-2.0 mm dia. range) 25	75 50
Silt (0.002-0.05mm dia. range) 15	40 27.5
Clay (< 0.002 mm dia. range) 15 -	30 22.5

2. Seeding specifications are as follows:

Common Name	Scientific Name	Percent Mix	Pounds Per Acre	Total Pounds Per Acre	
Temporary Grasses					
Seed Oats	<i>Avena sativa</i>	50%	15	30	
Annual Rye	<i>Lolium multiflorum</i>				
Native Grasses					
Big Bluestem Grass	<i>Andropogon gerardii</i>	30%	9		
Canada Wild Rye	<i>Elymus canadensis</i>				
Bottlebrush Grass	<i>Hystrix patula</i>				
Indian Grass	<i>Sorghastrum nutans</i>				
Native Wildflowers					
Thimbleweed	<i>Anemone cylindrica</i>	20%	6		
Butterfly Weed	<i>Asclepias tuberosa</i>				
New England Aster	<i>Aster novae-angliae</i>				
Coumbine	<i>Aquilegia canadensis</i>				
White False Indigo	<i>Baptisia leucantha</i>				
Tall Coreopsis	<i>Coreopsis tripteris</i>				
Showy Tick Trefoil	<i>Desmodium canadense</i>				
Flowering Spurge	<i>Euphorbi corollata</i>				
Woodland Sunflower	<i>Helianthus strumosus</i>				
Wild Lupin	<i>Lupinus perennis</i>				
Bergamot(Bee Balm)	<i>Monarda fistulose</i>				
Evening Primrose	<i>Oenothera biennis</i>				
Yellow Coneflower	<i>Ratibita pinnata</i>				
Black-eyed Susan	<i>Rudbeckia hirta</i>				
Tall Goldenrod	<i>Solidago altissima</i>				
Lance-leaved Goldenrod	<i>Solidago grminifolia</i>				
Stiff Goldenrod	<i>Solidago rigida</i>				
Tall Meadowrue	<i>Thalictrum polygamum</i>				
Culver's Root	<i>Veronicastrum virginicum</i>				
Ironweed	<i>Vernonia fasciculata</i>				
Golden Alexanders	<i>Zizia aurea</i>				

3. If requested and approved by the City or its authorized agent, the Contractor shall provide documentation of the seeding specifications and off-site source material soil type and non-impact (virgin material or analytical test results) prior to bringing the materials on-site. Such documentation may consist of certification from the borrow pit, laboratory analytical reports, or other documentation deemed acceptable by the City or its authorized agent.

F. EXECUTION

3. Quality Control

- b. The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to, the following:
 - i. Observance of safety regulations.
 - ii. Quantity and quality of materials, labor, equipment and Work performed.
 - iii. Protection, maintenance, and repair.

**APPENDIX I
SHEETS**

**APPENDIX II
REPORTS**

**APPENDIX III
FORMS**