Demolition over $50,000

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CITY OF BATTLE CREEK, MICHIGAN
NOTICE OF INVITATION FOR BIDS
Clearing & Demolition of BCU Properties
IFB # 2018-054B

IFB DUE DATE and TIME: March 7, 2018, at 2:00 pm local time (office hours 8-12 and 1-5) *NOTE!* City Hall now has Security on the 1st floor. Please allow extra time to get through Security when dropping off your bid.

BID SUBMITTAL: Bids must be submitted in a sealed envelope with the IFB number, the due date/time and the bidder's name and address clearly indicated on the envelope. Bids must be in the actual possession of the Purchasing Department Room 214, City Hall, 10 N. Division Street, Battle Creek, Michigan 49014 on or prior to the exact time and date indicated above. The prevailing clock shall be www.time.gov. Late bids shall not be considered. All bids will be publicly opened and read aloud at the aforementioned address. All interested parties are invited to attend.

PROJECT DESCRIPTION: This project consist of clearing and grubbing approximately 47-acres of wooded properties located in the Battle Creek Fort Custer Industrial Park. Demolition of three structures on three different properties is also included along with removals of various pavements, utilities, and foundations among the nine properties with turf restoration of disturbed areas.

PRE-BID CONFERENCE: NONE	**FUNDING:** This project has NO federal or state funding. All project funding is provided by the City of Battle Creek. None of the CDBG requirements are applicable for this contract.
TECHNICAL QUESTIONS OR SITE VISITATION: Kurt Tribbett, Engineering Administrator **269-966-3480**	**PREVAILING WAGES:** Required for this project. See attached wage rates at the end of this document. Contractor shall abide by all the requirements set forth in Section 208.09, PREVAILING WAGES ON CITY PROJECTS, of the City's Administrative Code.
COPIES OF IFB and PLANHOLDERS' LIST: Engineering Department 150 S. Kendall St. Battle Creek, MI 49037 269-966-3480	**FEE:** No fee **IFB ISSUE DATE: February 8, 2018**
DOCUMENT EXAMINATION: during normal business hours City of Battle Creek, Purchasing Division Dodge Corporation in Kalamazoo, Michigan Builders Exchange in Grand Rapids, Kalamazoo & Lansing, Michigan	**ADDENDA:** Each addendum will be on file in the Office of the Purchasing Agent. To the extent possible, copies will be mailed to each person registered as having received a set of bid documents. It shall be the bidder's responsibility to make inquiry as to addenda issued. All such addenda shall become a binding part of the contract.
BID BOND: Each bid must be accompanied by a certified check, cashier's check, or standard form bid bond, made payable to the City of Battle Creek, in an amount of not less than five (5%) percent of the base bid submitted. Failure of any accepted bidder to enter into a contract for the work will cause forfeit of the bid security. After contracts for the work have been signed, all bid securities will be returned.	**PERFORMANCE/LABOR/MATERIALS BONDS:** The accepted bidder will be required to furnish a satisfactory performance bond and labor/materials payment bond, each in an amount equal to 100% of the contract and insurance certificate upon forms acceptable to the City.

Bids may be withdrawn up to the time and date of the bid opening. After the bid opening, bids may not be withdrawn for a period of ninety (90) days thereafter. The City of Battle Creek reserves the right to waive any irregularity or informality in bids, to reject any and/or all bids, in whole or in part, or to award any contract to other than the low bidder, should it be deemed in its best interest to do so.

NOTICE TO BIDDERS

1. **BID SUBMISSION:**
   A. Bids must be submitted in complete original form by mail or messenger to the following address: Office of the Purchasing Agent, Room 214, City Hall, 10 N. Division Street, Battle Creek, MI 49014
   B. Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud. The prevailing clock shall be www.time.gov.
   C. All bids shall be tightly sealed in an opaque envelope and plainly marked with the Invitation for Bid number, due date and the bidder's name and address clearly indicated on the envelope.
   D. Late bids will not be accepted and will be returned to the bidder.
   E. All bids submitted in response to this invitation shall become the property of the City and be a matter of public record available for review.

2. **PREPARATION OF BIDS:**
   A. The Bid shall be legibly prepared with ink or typed.
   B. If a unit price or extension already entered is to be altered, it shall be crossed out and initialed by the bidder with ink.
   C. The bid shall be legally signed on the OFFER TO CONTRACT PAGE and the complete address of the bidder given thereon.
   D. The City is exempt from Federal Excise and State Sales taxes, and such taxes shall not be included in bid prices.

3. **SIGNATURES:** All bids, notifications, claims and statements must be signed as follows:
   All bids, notifications, claims and statements must be signed by an individual authorized to bind the bidder. Any individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

4. **REJECTION OR WITHDRAWAL:** Submission of additional terms, conditions or agreements with the bid document is grounds for deeming a bid nonresponsive and may result in bid rejection. The City reserves the right to reject any or all bids and to waive any informalities and minor irregularities defects in bids. Bids may be withdrawn in person by a bidder, or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date and time.

5. **AWARD:** The bid will be awarded to that responsible, responsive bidder whose bid, conforming to this solicitation, will be most advantageous to the City, price and other factors considered. Unless otherwise specified in this IFB, the City reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of the City. Any bidder who is in default to the City at the time of submittal of the bid shall have his bid rejected. The City reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by the City, shall be deemed non-responsive and the offer rejected.

   In evaluating bids, the City of Battle Creek shall consider the qualifications of the bidders, and where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, the City may conduct such investigations as the City deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications and financial ability of the bidders to fulfill the contract.

6. **CONTRACT:** A response to an IFB is an offer to contract with the City based upon the terms, conditions, and specifications contained in the City's IFB. Bids do not become contracts unless and until they are executed by the City, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions are modified by an IFB addendum or amendment, a contract amendment, or by mutually agreed terms and conditions in the contract documents.

7. **BID RESULTS:** A bid tabulation will be posted on the City's website and will also be on file and available for review after contract award in the Purchasing Department.

8. **CHANGES AND ADDENDA TO BID DOCUMENTS:** Each change or addendum issued in relation to this bid document will be on file in the Office of the Purchasing Agent. In addition, to the extent possible, copies will be mailed to each person registered as having received a set of bid documents. It shall be the bidder's responsibility to make inquiry as to changes or addenda issued. All such changes or addenda shall become part of the contract

and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the office of the City Purchasing Agent.

9. **SPECIFICATIONS:** Unless otherwise stated by the bidder, the bid will be considered as being in accordance with the City's applicable standard specifications, and any special specifications outlined in the Bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of the City, and should not be construed as excluding bids on other types of materials, equipment and supplies. However, the City does reserve the right to specify a sole brand, with no brand substitutions allowed. The bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. The City reserves the right to determine if equipment/product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of this bid, may be considered non-responsive. The City reserves the right to disregard any conflicting terms and conditions submitted by the contractor and hold the contractor to the submitted bid price. Contractors are strongly encouraged to not submit anything with their bid that is not specifically requested in this solicitation.

10. **DELIVERY:** Bids shall include all charges for mobilization, delivery, packing, crating, containers, etc. Prices bid will be considered as being based on F.O.B. Delivered, freight included.

11. **INTERPRETATION OF BID AND/OR CONTRACT DOCUMENTS:** All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. (Inquiries received that are not made in a timely fashion may or may not be considered).

12. **CURRENCY:** Prices calculated by the bidder shall be stated in U.S. dollars.

13. **PURCHASE ORDER:** The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent as evidenced by a purchase order.

14. **CERTIFICATION:** By signature in the offer section of the Offer and Acceptance page, bidder certifies:
    A The submission of the offer did not involve collusion or other anti-competitive practices.
    B. The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer.
    C. The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.
    D. The bidder hereby certifies that the firm will abide by the COPELAND ANTI-KICKBACK ACT, Title 18, U.S.C. June 25, 1948, Section 874, Kickbacks from Public Employees.

15. **DEFINITIONS:**
    "CITY" - The City of Battle Creek.
    "CITY UNIT" - The department of the City that intends to use the resulting contract.
    "CONTRACTOR" - The bidder whose proposal is accepted by the City.

GENERAL TERMS AND CONDITIONS

1. **MATERIALS AND WORKMANSHIP:** Unless otherwise specified, all materials and workmanship shall be new and of the best grade of their respective kinds for the purpose.

2. **NON-DISCRIMINATION CLAUSE:** The bidder agrees not to discriminate against any employee or applicant for employment, to be employed in the performance of such contract with respect to hire tenure, terms, conditions or privileges, of employment, or any matter directly or indirectly related to employment because of his or her actual or perceived race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation, or gender identity. Breach of this covenant may be regarded as a material breach of the contract as provided for in Act 220 and Act 453 of the Public Acts of 1976, as amended, entitled "Michigan Handicapper's Civil Rights Act" and/or the "Michigan Elliott Larson Civil Rights Act" and/or City of Battle Creek Chapter 214 "Discrimination Prohibited" Ordinance. The bidder further agrees to require similar provisions from any subcontractors, or suppliers. The bidder agrees to comply with the Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, as supplemented in Department of Labor regulations (41 CFR, Chapter 60).

3. **ASSIGNMENT OF CONTRACT:** No right or interest in this contract shall be assigned in whole or in part by the contractor and no delegation of any duty of Contractor shall be made without prior written permission of the City.

4. **INDEMNIFICATION:** The contractor shall protect, defend, and save the City, its officials, employees, departments and agents harmless against any demand for payment for the use of any patented material, process, or device that may enter into the manufacture, construction, or form a part of the work covered by either order or contract; and from suits or a charge of every nature and description brought against it for, or on account of, any injuries or damages received or sustained by the party or parties by or from any of the acts of the contractor, their employees, or agents; from all liability claims, demands, judgments and expenses to the persons or property occasioned, wholly, or in part, by the acts or omissions of contractor, agents or employees.

5. **CONTRACT:** The contract shall contain the entire agreement between the City and the Contractor and shall prevail over any previous contracts, proposals, negotiations, or master agreements. By signing the Offer to Contract, it is agreed to that the IFB in its entirety and all enclosed forms are fully incorporated herein as a material part of the contract. In case of conflicts, the following order shall prevail:1) Addendum 2) Specifications 3) Special Terms and Conditions 4) General Terms and Conditions 5) Instructions to Bidders 6) Insurance forms.

6. **PROVISIONS REQUIRED BY LAW:** Every provision of law and any clause required by law to be in the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

7. **RELATIONSHIP OF PARTIES:** It is clearly understood that each party shall act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other party for any purpose whatsoever. The Contractor is advised that taxes or social security payments shall not be withheld from a City payment issued hereunder and that Contractor should make arrangements to directly pay such expenses, if any.

8. **RIGHTS AND REMEDIES:** No provision in this document or in the bidder's offer shall be construed, expressly or by implication as a waiver by either party of any existing or future right and/or remedy available by law in the event of any claim or default or breach of contract. The failure of either party to insist upon the strict performance of any term or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the acceptance of materials or services, obligations imposed by this contract or by law, and shall not be deemed a waiver of any right of either party to insist upon the strict performance of the contract.

9. **ADVERTISING:** Contractor shall not advertise, issue a press release or otherwise publish information concerning this IFB or contract without prior written consent of the City. The City shall not unreasonably withhold permission.

10. **APPLICABLE REGULATIONS/POLICIES:** The Revised Code of the State of Michigan, the Charter of the City of Battle Creek, all City Ordinances, Rules and Regulations and Policies shall apply. It shall be the responsibility of the Bidder to comply with said regulations/policies.

11. **ROYALTIES, PATENTS, NOTICES AND FEES:** Contractor shall give all notices and pay all royalties and fees. He shall defend all suits or claims for infringement of any patent rights and shall save the City harmless from loss on account thereof. He shall comply with all laws, ordinances and codes applicable to any portion of the work.

12. **NON-COLLUSION:** By signing the Offer to Contract, the bidder, by its officers and authorized agents or representatives present at the time of filing this bid, being duly sworn on their oaths say, that neither they nor any of them have in any way, directly or indirectly entered into any arrangement or agreement with any other bidder or with any public officer of such City of Battle Creek, Michigan, whereby such affidavit or affiants or either of them has paid or is to pay to such other bidder or public officer any sum of money, or has given or is to give to such other bidder or public officer anything of value whatever, or such affidavit or affiants or either of them has not directly or indirectly, entered into any arrangement or agreement with any other bidder or bidders, which tends to or does lessen or destroy free competition in the letting of the contract sought for by the attached bids, that no inducement of any form or character other than that which appears on the face of the bid will be suggested, offered, paid or delivered to any person whomsoever to influence the acceptance of the bid or awarding of the contract, nor has this bidder any agreement or understanding of any kind whatsoever, with any person whomsoever to pay, deliver to, or share with any other person in any way or manner, any of the proceeds of the contract sought by this bid.

13. **MICHIGAN CONSTITUTIONAL REQUIREMENT:**
a). Notwithstanding any provision in this Contract to the contrary, and in accordance with Article I, Section 26 of the Michigan Constitution as adopted by the electorate November 7, 2006, City and its general contractors shall not discriminate against, or grant preferential treatment to, any individual or group on the basis of race, sex, color, ethnicity, or national origin in the operation of this Contract.
b). This section shall not prohibit any action that must be taken to establish or maintain eligibility for any federal program if ineligibility would result in a loss of federal funds in connection with this Contract, nor shall this section be interpreted as prohibiting bona fide qualifications based on sex that are reasonable necessary to the execution of this Contract.
c). In the event of conflict between any term of this Contract and this section, the language of this section shall control.

TERMS AND CONDITIONS FOR DEMOLITION

1. **ACCIDENT PREVENTION:** The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all the damages to persons or property either on or off the site, which occur as a result of his fault or negligence in connection with the prosecution of the work. The safety provisions of applicable laws and OSHA standards shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the city may determine to be reasonably necessary.

2. **CONFLICTS AND OMISSIONS:** The intent of the contract documents is to provide everything necessary for the proper execution of the work. In case of conflict, the work shall not proceed until a decision has been agreed upon by all parties concerned. The City's decision shall be final.

3. **WORKING CONDITIONS:** All work shall be done in accordance with all regulations governing the City Unit wherein the work is to be performed and with minimum possible interference with the proper functioning of the activities of the City Unit. Materials, tools, etc., shall be confined so as not to unduly encumber the premises.

4. **PRIOR EXAMINATION:** Contractor shall familiarize himself with local conditions affecting the job prior to submitting the bid. He shall take his own measurements and be responsible for the correctness of same. Contractor shall be held to have made such examinations and no allowances will be made in his behalf by reason of error or omission on his part. If any part of the Contractor's work depends for proper results upon existing work or the work of another contractor, the Contractor, before commencing work, shall notify the Director in writing of any defects that will affect the results.

5. **OTHER CONTRACTS:** The City may let other contracts in connection with the work and the Contractor shall properly connect and coordinate his work with the work of such other contractors. The City shall not be liable for any damages or increased costs occasioned by the failure of other contractors or sub-contractors to execute their work as may be anticipated by these documents.

6. **INSPECTION:** Contractor shall at all times permit and facilitate inspection of the work by the City.

7. **CHANGES:** Contractor shall make changes in the contracted work only as ordered in writing by the City. The actual work performed under this contract may be increased 50% or decreased 25% from the approximate quantities set forth in the Schedule included herein. Work will be performed only based on written authorization from the City. The City reserves the right to include other similar projects in this contract over and above those mentioned in said tabulations within these limitations. If extra work orders are given in accordance with the provisions of this contract, such work shall be considered a part hereof and subject to each and all of its terms and requirements.

8. **GUARANTEE:** Contractor guarantees to remedy any defects due to faulty materials or workmanship, which appear in the work within one year from the date of final acceptance by the City.

9. **PROTECTION:** Contractor shall properly protect all new and existing structures from damage. Contractor shall comply with all safety rules and regulations as published by the Michigan Dept. of Labor, Bureau of Safety and Regulations.

10. **CLEAN-UP:** Contractor shall at all times keep the premises free from accumulations of waste materials or rubbish caused by his employees or work and at the completion of the work he shall remove all his waste, tools, equipment, staging and surplus materials from the structure and grounds and leave work clean and ready for use.

11. **SAFETY RULES:** It is understood that the contractor shall perform all work under this contract in conformance with the State of Michigan general safety rules and regulations for the construction industry, being Act 89 of the Public Acts of 1963, as amended.

12. **TERMINATION FOR BREACH:** The City may terminate this contract for violations hereof when violations are not stopped immediately and corrected within a reasonable length of time after notification by the City. In the event of such termination, the City may complete the contracted work and the Contractor will be liable for any excess cost occasioned the City thereby and in such case the City may take possession of and utilize in completing the work such materials and equipment as may be on the site and necessary therefore.

13. **SUBCONTRACTORS:** Bidders shall submit with the Bid all subcontractors to be associated with their bid, including the type of work to be performed. All subcontractors shall be bound by all of the terms, conditions and requirements of the bid/contract; however, the prime contractor shall be responsible for the performance of the total work requirements. Contractor must provide copies of licenses for subcontractors.

14. **EMPLOYEES AND SUPERINTENDENCE:** Contractor shall enforce good order among his employees and shall not employ on the work site any disorderly, intemperate or unfit person or anyone not skilled in the work assigned to him. Contractor, or a competent person having authority to act for him, shall be at the worksite at all times.

SPECIAL TERMS AND CONDITIONS

1. **AWARD:** The City intends to award this project as a whole or impart.

2. **ORDER OF WORK:** If the Contractor has been awarded multiple properties, the City reserves the right to prioritize the sequence in which work shall be completed.

3. **PROPER DISPOSAL OF DEBRIS:** The Contractor must provide Kurt Tribbett, Building Official of Community Services with landfill dump tickets for debris from each house before payment will be made.

4. **CITY WRECKER'S LICENSE:** The Contractor must hold a Wrecker's License with the City of Battle Creek Inspection Division in order to obtain a permit. The Wrecker's License requires a performance bond and current insurance verification meeting the requirements herein.

5. **STATE LICENSE:** The State of Michigan requires that any individual or company contracting for the wrecking of a residential structure must have a Residential Builders License or Maintenance and Alteration Contractors License. If a Maintenance and Alteration Contractors license is in force, the license must specify "wrecking" as part of the license. **The bidder MUST provide evidence of the State license with the bid.**

6. **LIQUIDATED DAMAGES FOR DELAY:** If the work is not completed within the time stipulated in the contract documents, including any extensions of time for excusable delays as pre-approved by the Purchasing Agent or Code Compliance Manager, the contractor shall pay the City for the liquidated damages, and not as punishment, a rate of **$500.00 per day for each calendar day of delay beyond the completion date, unless extended in writing by the City**, until the work is completed. No extra allowance will be made for holidays. The City will enforce the liquidated damages for failure to complete the work within the allotted time frame. The City shall have the right to deduct from payment due, or to become due, to the Contractor or to sue for and recover compensation or damages for nonperformance of this Contract at the time stipulated herein.

7. **CONTRACTOR'S OBLIGATIONS:** The contractor shall give all notices required by, and comply with, all applicable laws, ordinances and codes of federal, state and local government. All disconnections and demolition shall comply with all applicable ordinances and codes, inclusive of all written waivers. Should the contractor fail to observe the foregoing provision and do demolition work at variance with any ordinance, code or written waivers, the contractor shall correct, with no additional cost to the City.

8. **DOCUMENTATION SUBMITTAL:** The following documentation is to be submitted to Kurt Tribbett, 150 S. Kendall, Battle Creek, MI. 49014 prior to the start of all demolitions.

   A. A copy of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 61, Subpart M form that is required to be submitted to the Michigan Department of Environmental Quality.
   B. Written notification of when asbestos removal will commence and end. This is mandatory in order for the City to coordinate an inspection of this process at the site prior to commencement of the demolition.

9. **HAZARDOUS MATERIAL REMOVAL:** This solicitation contains a report specifying whether or not asbestos is present in the structure being demolished. Contractor shall be a licensed asbestos abatement firm, or shall subcontract with a licensed asbestos abatement firm, in those cases where asbestos is removed. The City must be notified of all subcontractors, and receive all appropriate licenses for subcontractors, upon bid opening. Not providing this information may result in a bid being deemed non-responsive. Contractor shall be responsible for the actions of their subcontractor. Contractor is responsible for removal of structure, including all hazardous material removal, even if completed by a subcontractor.

10. **DUST CONTROL:**
   A. The Contractor will use all means necessary, and as required by Federal and/or State and/or local laws, if applicable, to control dust on or near the work and on or near all off site areas if such dust is caused by Contractor's operations during performance of the work or if it results from the conditions in which the Contractor leaves the site.
   B. The Contractor will use all means necessary to protect the adjacent properties before, during, and after, demolition.
   C. In the event of damage, Contractor shall immediately make all repairs and replacements necessary, to the approval of the City of Battle Creek and at no cost to the City of Battle Creek.
   D. Contractor is responsible for conducting operations in a safe and orderly fashion and in compliance with PA 154 of 1974.

11. **ADDITIONAL INFORMATION:** An operation is a demolition if the overall project involves the wrecking or taking out of any load supporting structural members of a subject facility. **Notification is required for demolition even if there is no asbestos containing materials in the facility**. Any related handling operations (such as clean up of demolition debris) or intentional burning of the facility is also subject to this definition.

Notice is required for demolition of all subject facilities, regardless of the amount of asbestos, including those facilities where the asbestos has been removed or has never contained asbestos.

12. **TIME OF COMPLETION:** The Contractor shall promptly begin work under this contract upon receipt of the Purchase Order, and all portions of the project made the subject of these contracts shall be begun and so prosecuted that they shall be completed and ready for final inspection within the time specified elsewhere in these Contract Documents. A total of 30 calendar days after receipt of the purchase order shall be allotted for the demolition. The City may extend this completion date for contractors who are awarded many properties. Such an extension should be requested at the time of contract award. The City will approve the completion extension in writing.

13. **EXTENSION OF TIME:**
    A. AVOIDABLE DELAYS: Avoidable delays in the prosecution or completion of the work shall include all delays that might have been avoided by the exercise of care, prudence, foresight or diligence on the part of the contractor.
    B. UNAVOIDABLE DELAYS: Unavoidable delays in the prosecution or completion of the work under these contracts shall include all delays that are caused by an act of God, and delays which may be the result of causes beyond the control of the Contractor and which he could not have provided against by the exercise of care, prudence, foresight or diligence. Delays due to equipment failure will not be allowed for more than two (2) days per contract.
    C. CITY SCHEDULED DELAYS: If the City deems it necessary, completion dates beyond 60 days may be scheduled.

14. **NOTICE OF DELAYS:** Whenever the Contractor foresees any delay in the prosecution of the work, and in any event, immediately upon the occurrence of any delay, he shall notify the City's Engineering Department in writing of the probability of the occurrence and its cause. After the completion of the work, the City's Engineering Department, in approving the amount due to the Contractor, will assume that any and all delays that have occurred in its prosecution and completion have been avoidable delays, except such delays that have been requested in writing and have been approved in advanced by the City's Engineering Department. The Contractor shall make no claims that any delay not called to the attention of the City's Engineering Department at the time of its occurrence has been an unavoidable delay.

15. **THE CITY OF BATTLE CREEK'S RIGHT TO WITHHOLD CERTAIN AMOUNTS:** The City may withhold from payments to the Contractor such an amount or amounts as may be necessary to cover:

    A. Any Liquidated Damages that have accrued, due to delay;
    B. Any actual damages assessed by MDEQ that are the direct result of contractor negligence;
    C. Failure of the Contractor to make proper payments to a subcontractor;
    D. Failure to provide the City with landfill tickets;
    E. Damage to city or neighboring property caused by the Contractor and not remedied.

16. **PENALTIES FOR TERMINATION FOR NON-PERFORMANCE:** If a Contractor has a contract terminated by the City for non-performance, the Contractor may be removed from the bidders list and debarred from bidding on future bids for an indefinite period of time, commencing on the date of the termination notice. The City may reinstate a vendor when it is in the City's best interest to do so.

17. **MDEQ NOTIFICATION:** The Contractor shall abide by the requirement to notify the Michigan Department of Environmental Quality (MDEQ) Air Quality Division of intent to demolish. Notification must be submitted a minimum of 10 working days prior to beginning demolition. The contractor must also provide a copy of this notice to Kurt Tribbett, 150 S. Kendall, Battle Creek, MI. 49014, 10 days prior to beginning demolition.

18. **LAND OWNER(S) NOTIFICATION:** The demolition contractor is to notify all land owners within 100 feet of the demolition site 10 days prior to the start of all demolitions.

    A. A copy of the national Emission Standards Air Pollutants (NESHAP), 40 CFR 61, Subpart Form that is required to be submitted to the Michigan Department of Environmental Quality is sufficient to comply with this provision.

19. **CONTRACTOR'S INSURANCE:**
    A. The Contractor shall at the time of execution of this contract, file with the City the Certificate of Insurance, which shall cover all of his insurance as required herein, including evidence of payment of premiums thereon, and the policy or policies or insurance covering said City and their officers, agents and employees. Each such policy and certificate shall be satisfactory to the City. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under this Contract.
    B. The contractor shall maintain insurances in force at all times during the term of this agreement at the minimum amounts and types as indicated.

Coverage Afforded		Limits of Liability
Workers' Compensation:		$ 100,000 or statutory limit
Commercial General Liability:	Bodily Injury	$1,000,000 each occurrence
including XCU	Property Damage	$1,000,000 each occurrence

	or Combined Single Limit	$1,000,000
Automobile Liability:	Bodily Injury	$ 300,000 each person
	Liability	$ 500,000 each occurrence
	Property Damage	$ 500,000
	or Combined Single Limit	$ 500,000

The City of Battle Creek shall be listed as an additional insured on general liability coverage, and shall be provided with a Certificate of Insurance, prior to award, that reflects this additional insured status. A 30-day notice of cancellation or material change shall be provided to the City and so noted on the Certificate of Insurance. All certificates and notices shall be sent to City of Battle Creek, P.O. Box 1717, Battle Creek, Michigan 49016.

20. **VENDOR EVALUATION:** Experience with the City shall be taken into consideration when evaluating responsibility of the vendor.

21. **PAYMENT:** Payment shall be made within 30 days of submittal of a correct invoice for project completion.

22. **FINES:** In the event that the City is fined by MDEQ or any other government agency solely due to the negligence of the contractor in following the rules and regulations of that government agency, the City may seek actual damages against Contractor, pursuant to all legal means of collection. In no case shall the City seek damages greater than the fine(s).

23. **VENUE:** Any party bringing a legal action or proceeding against any other party arising out of or relating to this Agreement or the transactions it contemplates shall bring the legal action or proceeding:

(i) in the United States District Court for the Western District of Michigan; or

(ii) in any court of the State of Michigan sitting in Calhoun County, if there is no federal subject matter jurisdiction.

24. **GOVERNING LAW:** This agreement shall be enforced under the laws of the State of Michigan. Contractor must comply with all applicable federal, state, county, and City laws, ordinances, and regulations. Contractor shall ensure payment of all taxes, licenses, permits, and other expenses of any nature associated with the provision of services herein. Contractor shall maintain in current status all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor.

SECTION I -- GENERAL SPECIFICATIONS APPLICABLE TO ALL PROPERTIES

1. The City has contracted with Soil and Materials Engineers (SME) to provide hazardous material testing on buildings and supply the City with reports for the abatement of the hazardous materials. If applicable, these specifications will be included with this IFB.

2. The Contractor **must** provide Kurt Tribbett with landfill dump tickets for debris from each house before payment will be made.

3. Contractor shall remove all foundations, exterior walls and basement walls accessory structures, attached or unattached. Contractor will remove concrete slabs, driveway and approaches. Contractor will remove no structure substantially as a whole, but demolish on the premises. Contractor shall demolish masonry walls in small sections and remove structures, steel, cast iron, and heavy timber framing by individual pieces. Contractor shall remove from the structure all interior partitions, piers, chimneys, columns, piping, furnaces apparatus, debris, etc. No construction debris shall be buried onsite.

4. The basement or part basements shall be entirely cleaned out of debris, including that debris resulting from the demolition of the structures. Following the removal of debris the floor slabs and footings shall be completely removed. An Open Hole Inspection must be performed prior to any fill placed in the hole. Concrete and masonry steps or porches shall be removed.

5. Adequate protection of persons and property shall be provided at all times. Contractor shall provide fencing, or if not feasible, then a person on the ground, in addition to any worker(s) operating equipment to monitor work area, insuring work area is clear of pedestrians or dangerous situations. Execute work in such a way as to avoid hazards to persons and property, protect entrance to the use of adjacent buildings and prevent interruption of free passage to and from such adjacent building.

6. Contractor shall raze structures in conformance with all State and Local laws.

7. The contractor shall grade the site to match the elevations of the site perimeter. Continuity of these grades will be maintained throughout the site by direction of the City. Retaining walls shall be removed, at the discretion of the city. Contractor is to fill the entire area with 4 inches of top soil and plant grass seed. All roots, sticks, rocks and similar objects shall be removed from the top six inches or graded areas. The City's Engineering Division prior to final payment will determine adequacy of grading.

8. The contractor shall, at his own expense, secure and pay to the appropriate department of the local government, the fees or charges for all permits for water, demolition, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, and repaving of streets and sidewalks and all other building, electrical, plumbing, gas and sewer permits necessary under the local regulatory body or any of its agencies.

9. The contractor shall comply with the applicable laws and ordinances governing the disposal of materials, debris, rubbish and trash on or off the project area, and shall commit no trespass on any public or private property in any operation due to or connected with the demolition and site clearance.

10. The contractor shall be responsible for all salvageable materials of the structure for which he has received a notice to proceed, whether or not he has removed such materials from said structure.

11. Only such property may be salvaged by the contractor as the City is authorized by the laws of the State of Michigan and the ordinances of the City of Battle Creek to declare as such and to have removed from the premises, and in the event of any doubt respecting the ownership or the right of salvage of any particular property, the contractor shall request from the City a written statement with respect thereto.

12. Subject to the above, all salvage becomes the property of the contractor, but storage of such materials and equipment on the project area will not be permitted.

13. Personal property of third persons or of occupants of buildings on the site shall not become the property of the contractor.

14. The person intending to cause a demolition or an excavation shall deliver written notice of such intent to the owner of each potentially affected adjoining lot, building or structure at least one week prior to the commencement of work. The notice shall request license to enter the potentially affected lot, building or structure prior to commencement of work and at reasonable intervals during the work to inspect and preserve the lot, building or structure from damage.

15. If afforded the necessary license to enter the adjoining lot, building or structure, the person causing the demolition or excavation to be made shall at all times and at his or her own expense preserve and protect the lot, building or structure from damage or injury. If the necessary license is not afforded, it shall be the duty of the owner of the adjoining lot, building or structure to make safe his or her own property, for the prosecution of which said owner shall be granted the necessary license to enter the premises of the demolition or excavation.

16. All waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties and public rights-of-way.

17. If the person causing a demolition or excavation to be made is not afforded license to enter an adjoining structure, that person shall immediately notify in writing both the code official and the owner of the adjoining property that the responsibility of providing support to the adjoining lot, building or structure has become the exclusive responsibility of the owner of the adjoining property.

18. Where a structure has been demolished or removed, the vacant lot shall be filled, graded and maintained in conformity to the established elevation of the street grade at curb level nearest to the point of demolition or excavation. Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

19. All service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the authority having jurisdiction.

20. The contractor shall daily keep all public sidewalks, streets and alleys clean to the satisfaction of the City of Battle Creek. The contractor shall leave all parcels in the contract in a condition acceptable to the City of Battle Creek before final payment will be approved.

21. Contractor is responsible for the demolition of the entire structure, including all hazardous materials identified herein and all actions of any subcontractor(s). Removal of any materials from this site shall meet all local, State, and Federal standards and laws.

22. Actual sampling reports are available upon request. Contact mdthompson@battlecreekmi.gov.

SECTION II – PRICE SHEET submit with bid

We propose to furnish all labor, materials, equipment, tools and services required to complete the work in accordance with the specifications and conditions contained herein in consideration of the sum or sums stated below.

Acknowledgement of addenda: _____; _____; _____; _____; _____; _____

(Quantities Indicated Are Approximate Only)
DEMOLITION & CLEARING OF BATTLE CREEK UNLIMITED PROJECTIES

ITEM NO.	ESTIMATED QUANTITIES	UNIT	DESCRIPTION OF WORK	UNIT PRICE	ITEM TOTAL
1	1	LSUM	Mobilization, Max $43,000		
2	47	ACRE	Clearing and Grubbing		
3	1	EACH	Tree, Rem 6" to 18"		
4	3	EACH	Utility Pole, Rem		
5	190	FOOT	Curb & Gutter, Rem		
6	3,863	SYD	HMA Surface, Rem		
7	654	SYD	Sidewalk, Rem, Modified		
8	499	CYD	Masonry and Conc Structure, Rem		
9	190	FOOT	Sewer, Rem Less than 24"		
10	2	EACH	Hydrant, Rem		
11	1,000	FOOT	Water Main, Rem		
12	2,683	SFT	Demolition of Site 145 Newtown		
13	1,743	SFT	Demolition of Site 207 Robertson		
14	530	SFT	Demolition of Site 4857 W. Columbia		
15	3	EACH	Well Abandonment		
16	6,220	FOOT	Erosion Control, Silt Fence		
17	231,314	SYD	Turf Restoration		
18	1	LSUM	Project Cleanup		

TOTAL BID = _____

A bid must be made on each item with no qualifying statement(s). Bidder acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents. All specific cash allowances are included in the prices set forth below and have been computed in accordance with the Contract Documents.

It is expressly understood and agreed that the total base bid as reflected on the attached Bidding Schedule is the basis for establishing the amount of the bid security on this bid and that this total base bid is not to be construed a Lump Sum Bid. It is further understood that quantities in the Bidding Schedule for unit price items are approximate only, and that payment of a contract will be made only on the actual quantities or work completed in place, measured on the basis defined in the General Provisions, Contract Specifications or other Contract Documents.

SECTION III – OFFER TO CONTRACT submit with bid

The undersigned has carefully checked the attached Bidding Schedule against the Contract Drawings and Specifications and other Contract Documents before preparing this Bid and accepts the said quantities to be substantially correct, both as to classification and amount, and as correctly listing the complete work to be done in accordance with the Contract Drawings, Specifications and other Contract Documents.

BID SECURITY
Accompanying this bid is a _____ in the amount of five percent (5%) or _____ Dollars ($_____). The total amount of bid security is based on the total base bid of this proposal.

COMPLETION
If awarded a contract under this proposal, the undersigned agrees to start work at the site within 10 days of notice to proceed. The undersigned further agrees to complete the project by July 31, 2018. All other due dates listed anywhere else in the IFB are void.

LIQUIDATED DAMAGES
Liquidated damages of $500.00 per calendar day will be assessed for failure to meet any deadline, as noted in the Project Specifications.

BIDDER'S SIGNATURE: Complete the applicable paragraph below.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder, and that our firm is not debarred from doing business under the Federal Excluded Parties List System (epls.gov).

I, the Contractor or Contractor's legally authorized signer, further certify compliance with the City of Battle Creek Ordinance Chapter 214, Discrimination Prohibited. I further acknowledge and agree that the Contractor's violation of Chapter 214 shall be a material breach of this contract. In addition, Contractor acknowledges and agrees that it shall be liable for any costs or expenses incurred by the City in obtaining from other sources, the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under the contract as a result of a material breach in the Contract for violations of Chapter 214.

(a) Corporation
The bidder is a corporation organized and existing under the State of _____, which operates under the legal name of _____, and the full names of its officers are as follows:
President: _____
Secretary: _____
Treasurer: _____
Manager: _____

(b) Co-Partnership
The bidder is a co-partnership consisting of individual partners whose full names are as follows:

_____ _____
_____ _____
_____ _____
_____ _____

(c) Individual
The bidder is an individual whose full name is _____ and, if operating under a trade name, said trade name is _____.
NAME: _____
ADDRESS: _____
CITY & STATE: _____

THIS BID OFFERED BY:

SIGNATURE: _____

NAME: _____

TITLE: _____

PHONE: _____

FAX: _____

SECTION IV - CONTRACTOR'S BID FORMS submit with bid

THESE FORMS MUST BE RETURNED WITH THE BID

TABLE OF CONTENTS

CONTRACTOR'S BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, _____, (hereinafter called the "Principal"), and _____(hereinafter called the "Principal"), and _____ _____ hereinafter called the "Surety"), a corporation chartered and existing under the laws of the State of _____, with its principal offices in the City of _____ and authorized to do business in the State of Michigan, are held and firmly bound unto the City of Battle Creek (hereinafter called the "Owner"), in the full and just sum of _____ _____ Dollars ($_____) good and lawful money of the United States of America, to be paid upon demand of the Owner, to which payment well and truly to be made, the Principal and Surety bind themselves, their heirs, executors, administrators, and assigns, jointly and severally and firmly by these presents.

WHEREAS, the Principal is about to submit, or has submitted to the Owner, a proposal for furnishing all labor, materials, equipment and incidentals necessary to complete this contract.

WHEREAS, the Principal desires to file this bond in accordance with law, in lieu of a certified bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE: The conditions of this obligation are such that if the Proposal be accepted, the Principal shall, within ten (10) days after the date of receipt of a written notice of award of contract, execute a contract in accordance with the Proposal and upon the terms, conditions and price(s) set forth therein, of the form and manner required by the Owner, and execute a sufficient and satisfactory contract performance bond payable to the Owner, and in an amount of One Hundred Percent (100%) of the total contract price in the form and with security satisfactory to said Owner, then this obligation to be void; otherwise to be and remain in full force and virtue in law; and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid Owner, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty but as liquidated damages.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day of _____, 2018.

_____
Principal

By:_____
(Seal)

_____
Surety

By:_____
(Seal)

Countersigned:_____

CERTIFICATE TO BE EXECUTED

IF

CONTRACTOR IS A CORPORATION

I, _____, certify that I am the _____

_____ of the Corporation named as Contractor hereinabove; that _____

_____ who signed the foregoing Agreement on behalf of the Contractor was then the _____ of said Corporation; that said Agreement was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporate powers.

_____

(Corporate Seal)

STATEMENT OF EXPERIENCE OF BIDDER

The Bidder shall state below the work of similar magnitude or character that he has done, and shall give references that will enable the City of Battle Creek to judge his experience, skill and business standing and of his ability to conduct the work as completely and as rapidly as required under the terms of this contract.

PROJECT AND LOCATION ***REFERENCES (include name and phone number)***

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(7) _____

_____

(8) _____

_____

(9) _____

_____

ATTACHMENT A - DISADVANTAGED BUSINESS (DBE) FORM

I. YOUR FIRM'S BACKGROUND:

Is your firm an MBE (at least 51% minority ownership)? _____YES _____NO

Is your firm a WBE (at least 51% woman ownership)? _____YES _____NO

Are you subcontracting any part of this project? _____YES _____NO

II. SUBCONTRACTING INFORMATION: If subcontracting any part of the project, the bidder/contractor expressly agrees that:

(1) If awarded a contract as a result of this bid, the major subcontractors used in the prosecution of the work will be those listed below, and
(2) The following list includes all subcontractors who will perform work representing approximately five percent (5%) or more of the Total Base Bid.
(3) The Bidder represents that the subcontractors listed below are financially responsible and are qualified to do the work required.

SUBCONTRACTOR NAME	City/State	Trade or Commodity	MBE	WBE	Approximate dollar value
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$
			Y / N	Y / N	$

III. DBE RECRUITMENT ACTIVITY LOG: List the MBE's and WBE's that were approached about being a subcontractor for this job, but who are NOT listed above as a subcontractor.

NAME OF FIRM *APPROACHED*, BUT NOT USED ON THIS PROJECT	City/State	Trade or Commodity	MBE	WBE	Reason not used on this project
			Y / N	Y / N	
			Y / N	Y / N	
			Y / N	Y / N	
			Y / N	Y / N	

SECTION V - CONTRACTOR'S CONTRACT FORMS

THESE FORMS WILL BE REQUIRED FOR AWARD

CONTRACT FORM

PERFORMANCE BOND

LABOR AND MATERIAL BOND

CONTRACT FORM
CLEARING & DEMOLITION OF BCU PROPERTIES
CONTRACT NO. 2018-054B

THIS AGREEMENT, made and entered into this ___ day of_____, 2018, by and between _____ _____ hereinafter called the "Contractor" and the City of Battle Creek, hereinafter called the "Owner."

WITNESSETH: In consideration for the mutual covenants hereinafter stated, the parties agree for themselves, their personal representatives, successors, assigns as follows:

I. The Contractor promises and agrees:

A. To furnish all materials, construction water, equipment, tools, dewatering devices, skill and labor of every description necessary or reasonable incidental to carrying forth and completing in good, firm, substantial and workmanlike manner, the work specified, in strict conformity with the true intent of the NOTICE TO BIDDERS, SPECIAL INSTRUCTIONS, GENERAL INSTRUCTIONS, PROPOSAL, SPECIAL CONDITIONS, GENERAL CONDITIONS, AGREEMENT, BONDS, GENERAL SPECIFICATIONS, and Project Specifications, and other contract documents and addenda thereto, which are hereby made a part hereof as fully and to the same effect as though they had been set forth at length herein.

B. To commence work under this contract on or before a date to be specified by the owner in a written Notice to Proceed and complete the project by the date specified in Proposal.

C. Requirements for a specific trade or contract will generally be described in that portion of the specifications or drawings related to that trade or contract. Such requirements may, however, be described in other sections of the Contract Documents. The Contractor will be held responsible for having carefully examined all drawings and read all requirements of the specifications and all Contract Documents to avoid omissions or duplications and to insure a complete job.

D. The Contractor must be fully informed about conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

E. Any claim by the Contractor of an inability to meet any requirement set forth in the Contract Documents, or that any requirement of these documents is impractical or unreasonable, will not be recognized, unless the claim was made at the time his proposal was submitted, and specific provision is made for such claim in the Agreement between Owner and Contractor (Proposal and Agreement).

F. NON-DISCRIMINATION CLAUSE: The bidder agrees not to discriminate against any employee or applicant for employment, to be employed in the performance of such contract with respect to hire tenure, terms, conditions or privileges, of employment, or any matter directly or indirectly related to employment because of his or her actual or perceived race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation, or gender identity. Breach of this covenant may be regarded as a material breach of the contract as provided for in Act 220 and Act 453 of the Public Acts of 1976, as amended, entitled "Michigan Handicapper's Civil Rights Act" and/or the "Michigan Elliott Larson Civil Rights Act" and/or City of Battle Creek Chapter 214 "Discrimination Prohibited" Ordinance. The bidder further agrees to require similar provisions from any subcontractors, or suppliers. The bidder agrees to comply with the Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, as supplemented in Department of Labor regulations (41 CFR, Chapter 60).

II. The Owner promises and agrees:

A. To pay the Contractor for said work when completed in accordance with the provisions of these contract documents, and for the contract sum of:

_____ dollars ($_____). Payment for work is subject to additions provided therein and for the authorized work complete in place and accepted by the Owner or its authorized representatives.

III. It is further understood and agreed between the parties hereto as follows:

A. The said work is to be done in accordance with the laws of the State of Michigan to the entire satisfaction and approval of the Owner or its duly authorized representatives.

B. The decision of said Owner's authorized representative upon any questions connected with the execution of this Agreement or any failure or delay in the prosecution of the work by said Contractor shall be final and conclusive.

C. If, at any time after the execution of the Agreement and the Bond for its faithful performance, the Owner shall deem the surety or sureties then upon said bond to be unsatisfactory or, if, for any reason said bond shall cease to be adequate security for the performance of the work, the Contractor shall, at his expense, within fifteen (15) calendar days after receipt of written notice from the Owner to do so, furnish an additional bond or bonds in such form and amount and with such surety or sureties as shall be satisfactory to the Owner. In such event, no further payment to the Contractor shall be deemed to be due under this Agreement until such new or additional security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the Owner.

D. VENUE: Any party bringing a legal action or proceeding against any other party arising out of or relating to this Agreement or the transactions it contemplates shall bring the legal action or proceeding:

(i) in the United States District Court for the Western District of Michigan; or

(ii) in any court of the State of Michigan sitting in Calhoun County, if there is no federal subject matter jurisdiction.

E. GOVERNING LAW: This agreement shall be enforced under the laws of the State of Michigan. Contractor must comply with all applicable federal, state, county, and City laws, ordinances, and regulations. Contractor shall ensure payment of all taxes, licenses, permits, and other expenses of any nature associated with the provision of services herein. Contractor shall maintain in current status all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor.

IN WITNESS WHEREOF, the said parties have hereunto set their hands and affixed their seals, the day and year first above written.

STATE OF MICHIGAN)
) ss
COUNTY OF CALHOUN)

SIGNED, SEALED, AND
EXECUTED BY CONTRACTOR:

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder, and that our firm is not debarred from doing business under the Federal Excluded Parties List System (epls.gov):

In the Presence of:

_____

By:_____

_____
Notary Public

Title:_____

CONTRACT FORM APPROVED BY:

SIGNED, SEALED, & EXECUTED
BY CITY OF BATTLE CREEK

_____
City Attorney

_____
City Manager

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that _____ _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Battle Creek in the full and just sum of _____ _____ Dollars ($_____ _____) lawful money of the United States of America for the payment of which sum of money well and truly to be made, we bind ourselves, heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract dated the _____ day of _____, 20_____ for the _____ complete, as described in the foregoing Proposal and Agreement.

NOW THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that if the said Principal shall in all respects well and truly keep and perform the said contract, and shall pay all sums of money due or to become due, for any labor, materials, apparatus, fixtures or equipment furnished for the purpose of constructing the work provided in said contract, and shall defend, indemnify and save harmless said City of Battle Creek against any and all liens, encumbrances, damages, claims, demands, expenses, costs and charges of every kind except as otherwise provided in said specifications and other Contract Documents arising out of or in relation to the performance of said work and the provisions of said contract, and shall remove and replace any defects in workmanship or materials which may be apparent or may develop within a period of one (1) year from the date of final acceptance, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

And the said Surety, for value received, hereby stipulates and agreed that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or to the work or to the specifications.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____ _____, 2018.

PRINCIPAL ATTEST:

_____ Principal Business Name	_____ Principal Secretary Signature & Seal
_____ Address	_____ Principal Secretary Printed Name
_____ City, State, Zip	_____ Witness of Principal

SURETY ATTEST:

_____ Surety Business Name	BY: _____ Attorney-in-Fact Signature & Seal
_____ Address	_____ Attorney-in-Fact Printed Name
_____ City, State, Zip	

LABOR AND MATERIALS BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned, _____, hereinafter called the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, having its principal office at _____, hereinafter called the "Surety," are held and firmly bound unto the City of Battle Creek, hereinafter called the "Owner," for use of any and every person, co-partnership, association or corporation interested in the full and just sum of _____Dollars ($_____), lawful money of the United States of America, to be paid to the said obligees or its or their assigns, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. Sealed with our respective seals and dated this ____ day of _____, 2018.

WHEREAS, the above bounded _____, Principal, has entered into a contract with the City of Battle Creek.

Dated the _____ day of _____, 2018, for the _____.

NOW, THEREFORE, THE CONDITION OF THIS CONDITION IS SUCH, that if the above bounded Principal shall and will promptly pay or cause to be paid all sums of money which may be due any person, co-partnership, association or corporation for all material furnished and labor supplied or performed in the prosecution of the work, whether or not the said material or labor enter into and become component parts of the work or improvement contemplated, then this obligation to be void; otherwise to remain in full force and effect.

The Principal and Surety further jointly and severally agree with the obligee herein that every person, co-partnership, association or corporation who, whether as subcontractor or otherwise, has furnished material or supplied or performed labor in the prosecution of the work as above provided and who has not been paid therefore may sue in assumption on this bond in the name of the Owner for his, their, or its use, prosecute the same to final judgment for such sum or sums as may be justly due him, them, or it, and have execution thereon, provided, however, that the Owner shall not be liable for payment of any costs or expenses of any such suit.

IT IS FURTHER AGREED, that any alterations which may be made in the terms of the contract or in the work to be done or materials to be furnished or labor to be supplied or performed under it or the giving by the Owner or any extension of time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and Surety or Sureties or either or any of them their heirs, executors, administrators, successors or assigns, from their liability hereunder, notice to the Surety or Sureties of any such alteration, extension or forbearance being hereby waived.

IN WITNESS WHEREOF, the said Principal and Surety have duly executed this bond under the seal and day and year first above written.

ATTEST:

_____
Principal

_____
(Seal)

BY:_____

_____
Surety

ATTEST

BY:_____
Attorney-in-Fact

_____

(SEAL)

SECTION VI – SPECIAL PROVISIONS

SPECIAL PROVISIONS
FOR
FIRE HYDRANT USE PERMIT

1 of 3

krt/City of Battle Creek 1/25/18

DESCRIPTION

A "Fire Hydrant Use Permit" is required for the withdrawal of hydrant water for all purposes other than fire or emergency per City of Battle Creek Ordinance 1040.13. A permit application is included with this Special Provision. Fees for the permit will include a security deposit, ready-to-serve, and consumption at 1.5 the current city commodity rate as defined by Fee Bond and Insurance Schedule located at the following link:

http://www.battlecreekmi.gov/DocumentCenter/View/81

MEASUREMENT AND PAYMENT

There is no separate payment for costs involved in obtaining a Fire Hydrant Use Permit or for the water used. The Contractor is responsible for all costs stated on the attached permit. Payment is considered included in the contract unit prices bid for other contract items.

Date Permit Issued at Water Billing	Permit/Account No.

Permit/Account Issued To: (Company&Representative)	***Phone Numbers:***
Billing Address:	
City/State	
Permit Valid From: To:	Location of Hydrant to be Used

This permit authorizes the use of the City of Battle Creek fire hydrant for the conditions set forth below:

1. A deposit, as defined in the *Fee Bond and Insurance Schedule,* will be paid in advance of installing the hydrant meter set.
2. The ready-to-serve fee will be billed as defined in the *Fee Bond and Insurance Schedule.*
3. Charges for water consumption shall be as defined in the *Fee Bond and Insurance Schedule.*
4. Permit shall be in the possession of the user at any time water is withdrawn from the hydrant and be shown upon request by the City.
5. Customer shall comply with the requirements set forth in the City of Battle Creek Code of ordinance, section 1040.13
6. Customer shall comply with the requirements set forth in the most current edition of the Rules and Regulations of the Commission of the City of Battle Creek, governing water service by the Water Division of the Department of Public Works.
7. Customer is fully responsible for any damage or loss to the hydrant, and/or the hydrant meter set. All charges shall be based on a time and materials for repair of the hydrant or meter set. If replacement is necessary, either due to damage or loss, replacement costs shall be established through competitive vendor bidding by the City of Battle Creek. Replacement costs in excess of deposit amount will be invoiced to permit holder.
8. The Metering Equipment Setting Fee will be deducted from the deposit upon removal of the hydrant meter.

The *Fee Bond and Insurance Schedule* related to Permitted Hydrant Use is available upon request and at the following link on the City of Battle Creek website.

http://www.battlecreekmi.gov/DocumentCenter/View/81

Meter Set Information	
Meter Manufacturer	Meter Number
RPZ Manufacturer	RPZ Number
Hydrant Meter Set Number	Beginning Read

Water Billing Information		
Deposit Received by:	☐ CASH	☐ CHECK
Work Order Number for Meter Set Installation	#	

Signature of Company Representative:_____ Date:_____

Hydrant Meter Process:

1. Fire Hydrant Use applicant contacts the Water Division at the Department of Public Works at 269.966.3506 for preliminary approval and to determine availability of hydrant location, and hydrant meter set equipment.

2. Water Division supplies hydrant meter set equipment and hydrant location information to Water Billing via e-mail. The Fire Hydrant Use applicant will be referred to the Water Billing/Finance Department at City Hall, 10 N. Division, Battle Creek, MI for additional processing.

3. Applicant pays the deposit and completes the City of Battle Creek Utility Service Application at the Water Billing/Finance Department at City Hall to establish a water account for the defined meter set. The Water Billing/Finance Department will create an account to record the applied receipts from the permit deposit and facilitate monthly billing. The Water Billing/Finance Department will create a Work Order directing the Water Division to install the hydrant meter set at the location defined on this permit.

4. The Water Department shall install the meter to the hydrant and retain a copy of the work order and permit until the hydrant meter usage is complete. Customer shall keep a copy of the permit as proof of authorized use of meter set.

5. The Water Department may inspect the water truck or tank for air gap or backflow preventer at any time during the duration of this permit.

6. The Water Department will read the meter on the hydrant every month. The Water Billing/Finance Department will bill the account holder on a monthly basis and payment will be as directed for all water accounts within the City of Battle Creek. Past due accounts will be subject to the delinquent collection process defined in the City of Battle Creek code of ordinances.

7. Upon notice from the Customer to the Water Billing/Finance Department that the water use has been completed, a work order for removal of the equipment will be sent to the Water Division. Water Division staff will remove the meter set and inspect the hydrant. Customer will be held responsible for any damage or loss of meter and repairs to hydrant if needed. The work order with the final read will be returned to the Water Billing/Finance Department for completion of Section 4 of the permit. The Water Billing/Finance Department shall issue either a refund of portions of the deposit, or invoice for any amount exceeding the deposit paid.

NOTICE TO BIDDER
FOR

SCOPE OF PROJECT
1 of 2

krt/City of Battle Creek February 2, 2018

This project shall consist of clearing and grubbing approximately 47-acres of wooded properties located in the Battle Creek Fort Custer Industrial Park. Demolition of three structures on three different properties is also included along with removals of various pavements, utilities, and foundations among the nine properties including turf restoration of disturbed areas.

Specifications for structure demolition at 145 Newtown Avenue, 207 Robertson Avenue and 4847 W. Columbia Avenue by Soil and Material Engineers, Inc. (SME) are attached. Clearing and grubbing consist of removing all brush, trees, stumps and other vegetated material as designated in attached drawings. Bidders are encouraged to take possession of all marketable wood to discount total project cost.

This project is in preparation for future mass grading projects. After the project award, the contractor shall begin work on Sites 3, 8, and 9 as identified on the attached Site Location Map. Contractor shall coordinate with survey crews once sites are cleared to expedite site grading design work. Sites 1 & 2 have the least impeding work coming and shall be the last two sites completed for the project.

Bid items shall conform to the 2012 Standard Specifications for Construction as published by the Michigan Department of Transportation with the following highlighted or additional specifications:

- **Mobilization, Max**; located in Section 150 of the 2012 Standard Specifications for Construction and note that if bidder exceeds the maximum amount of the cost listed in this pay item, the City will compute the total bid with maximum amount listed in the pay item description. This maximum amount has been calculated at 10% of the Engineers Estimate for the entire project

- **Clearing**; located in Section 201 of the 2012 Standard Specifications for Construction. Includes area as shown on attached drawings and as marked by Engineer. Burning is not allowed. All vegetated material shall be removed from site as lumber or chipped material. *The owner reserves the right to 1,000-cyd of chipped wood and shall be delivered to the Waste Water Treatment Plant at 2000 River Road.*

- **Erosion Control, Silt Fence**; located in Section 208 of the 2012 Standard Specifications for Construction and placement will be directed by Engineer. The City will obtain the SESC permit and contractor shall follow the permit guidelines.

- **Project Cleanup**; located in Section 209 of the 2012 Standard Specifications for Construction and shall include mechanically raking entire cleared site and disposing woody debris at the end of the project.

- **Demolition of Site __;** these items shall be done per the attached Demolition specifications as prepared by SME. Payment for completed work will be by area in square feet as measure along outside walls and includes the complete removal of the structure from foundation to roof, to proper offsite disposal or recyclable facilities.

- **Well Abandonment**; will be use to eliminate potable wells at Sites 4, 5 & 6 and shall follow the attached Section 33 29 00 for Well Abandonment as prepared by SME in Section 33 29 00.

- **Turf Restoration**; will be used for disturbed areas to prevent soil erosion as directed by the Engineer and shall follow the attached Section 32 92 00 for Turfs and Lawns as prepared by SME. Payment for completed work will be by area covered in square yards.

- **Project Cleanup**; shall conform to Section 209 of the 2012 Standard Specifications for Construction from MDOT and will require Project Closeout forms per attached Section 01 77 19 as prepared by SME

- Temporary and advance warning signage for truck exiting and entering the sites shall be included in the above pay items. Obtaining MDOT Right-Of-Way permits when applicable for signage shall be the responsibility of the contractor.

Project is intended to be awarded by March 26, 2018 and Contractor shall commence work within 10 days of notice of award and willing to attend a pre-construction meeting prior to work if deemed necessary by the Engineer. The contractor shall complete all work by June 29, 2018.

Awarded Contractor will be required to attend a pre-construction meeting and submit a progress schedule for this meeting per attached Section 01 33 00 for Submittals as prepared by SME.

The Bidder shall become familiar with the scope of work by viewing project documents and visiting the site. Project document questions shall be directed to Kurt Tribbett at (269) 966-3343.

NOTICE OF BIDDER

UTILITY COORDINATION

The contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.07 of the 2012 MDOT Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the 2012 MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.03 of the 2012 MDOT Standard Specifications for Construction.

PUBLIC UTILITIES

The "Miss Dig" alert number is 800-482-7171. The following Public Utilities have facilities located within the Right-of-Way:

AMERITECH / SBC
(telephone)
2919 Millcork
Kalamazoo, MI 49001
269-384-4490
JEFF SAYLOR

CONSUMER ENERGY CO.
(electric)
311 E. Michigan Ave.
Battle Creek, MI 49017
269-969-8595
MATTHEW KOEPKE

SEMCO ENERGY
(gas)
15851 Helmer Road
Battle Creek, MI 49015
269-420-7458
JULIE CONANT

COMCAST
(cable TV)
350 N. 22nd St.
Battle Creek, MI 49015
269-788-1150
JOE SCHOPT

CITY OF BATTLE CREEK
(Water Division)
150 S. Kendall St.
Battle Creek, MI 49015
269-966-3496
MATTHEW MILLER

CITY OF BATTLE CREEK
(Sewer Division)
2000 W. River Rd.
Battle Creek, MI 49017
269-966-3513
BRYAN CRAWFORD

CITY OF BATTLE CREEK
(Signs and Signals Division)
150 S. Kendall St.
Battle Creek, MI 49015
269-966-3527
JAMES TOBIAS

The owners of the existing service facilities that are within the grading or structure limits will move them, as shown on plans, to locations designated by the Engineer or will move them entirely from the Right-of-Way. Owners of Public Utilities will not be required by the City to move additional poles or structure in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

Krt/1-22-18

SPECIAL PROVISIONS
FOR

WATER MAIN, REM

1of 1

krt/City of Battle Creek January 31, 2018

DESCRIPTION

This item shall be per MDOT Section 203 of the 2012 Standard Specifications for Construction for removing pipe and include water mains as directed by the Engineer. Included in this work is all necessary excavation and disposal of water pipe offsite, along with backfilling and compacting excavated material to original conditions.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items). The price shall be payment in full for furnishing all necessary labor, equipment and materials.

Pay Item	Pay Unit
Water Main, Rem	**Foot**

SPECIAL PROVISION
FOR

SIDEWALK, REMOVE, MODIFIED

1 of 1

tre/City of Battle Creek 02/2014

DESCRIPTION

This work shall be per Section 204 of the MDOT 2012 Standard Specifications for Construction with the exception that the removal shall be for up to a thickness of 8-inches and for thicknesses greater than 8" the pay item of Masonry and Conc Structure, Rem will be used in lieu of as agreed with the Engineer. Any granular material needed for fill to match existing grade will be included with this item. This item shall also include full depth saw cutting of all edges where pavement is to remain. Saw cutting will be consider part of this item and not be paid as an extra item.

Disposal of materials shall be per Section 204.03 of the MDOT 2012 Standard Specifications for Construction.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items). The price shall be payment in full for furnishing all necessary labor, equipment and materials. No additional payment will be made for pavement depths that vary from those indicated.

Pay Item	Pay Unit
Sidewalk, Rem, Modified	**Square Yard**

SECTION VII – PREVAILING WAGES (MDLEG)

General Decision Number: MI180079 01/05/2018 MI79

Superseded General Decision Number: MI20170079

State: Michigan

Construction Type: Building

County: Calhoun County in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number Publication Date
0 01/05/2018

ASBE0047-002 07/01/2016

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 30.22	16.48

BOIL0169-001 01/01/2016

	Rates	Fringes
BOILERMAKER	$ 33.88	30.39

BRMI0009-031 08/01/2016

	Rates	Fringes
BRICKLAYER	$ 27.69	16.93
TILE FINISHER	$ 21.79	11.04
TILE SETTER	$ 23.04	12.39

CARP0525-003 06/01/2017

	Rates	Fringes

CARPENTER, Includes
Acoustical Ceiling
Installation, Drywall
Hanging, and Form Work.....$ 22.15
19.30

CARP1102-001 06/01/2017

	Rates	Fringes
MILLWRIGHT	$ 25.24	24.54

ELEC0445-011 05/29/2017

	Rates	Fringes
ELECTRICIAN	$ 31.00	19.38

ENGI0324-002 06/01/2017

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1	$ 37.58	23.30
GROUP 2	$ 34.28	23.30
GROUP 3	$ 31.63	23.30
GROUP 4	$ 29.92	23.30
GROUP 5	$ 29.92	23.30
GROUP 6	$ 24.06	23.30
GROUP 7	$ 21.58	23.30

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: $1.50
per hour above the group 1 rate.
Crane operator with main boom and jib 400' or longer: $3.00
per hour above the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of
July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane operator with main boom and jib 400', 300', or
220' or longer.

GROUP 2: Crane operator with main boom and jib 140' or
longer, tower crane, gantry crane, whirley derrick

GROUP 3: Backhoe/Excavator/Trackhoe; Crane; Concrete Pump;
Grader/Blade; Highlift; Hoist; Loader; Roller; Scraper;
Stiff Leg Derrick; Trencher

GROUP 4: Bobcat/Skid Loader; Broom/Sweeper; Fork Truck (over
20' lift)

GROUP 5: Boom Truck (non-swinging)

GROUP 6: Fork Truck (20' lift and under for masonry work)

GROUP 7: Oiler

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* IRON0340-002 06/19/2017

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL	$ 24.43	24.67

LABO0355-022 06/01/2016

	Rates	Fringes
LABORER		
Common or General; Grade Checker; Mason Tender - Brick; Mason Tender -		

Cement/Concrete;
Sandblaster.....$ 20.09 12.85
Pipelayer.....$ 20.34 12.85

PAIN0312-002 06/01/2017

Rates Fringes

PAINTER: Brush and Roller.....$ 23.72 12.52
PAINTER: Drywall Finishing/Taping.....$ 23.72 12.52
PAINTER: Spray.....$ 24.92 12.52

PLAS0016-007 04/01/2014

Rates Fringes

PLASTERER.....$ 21.18 12.43

PLUM0333-006 06/01/2017

Rates Fringes

PIPEFITTER, Includes HVAC Pipe and Unit Installation.....$ 35.89 21.13
PLUMBER, Excludes HVAC Pipe and Unit Installation.....$ 35.89 21.13

FOOTNOTE:

Paid Holidays: Memorial Day, Independence Day and Labor Day,
if the employee works the work day preceding and following
the holiday unless proven illness or injury prevents the
employee from working.

ROOF0070-002 06/01/2017

Rates Fringes

ROOFER.....$ 27.80 13.79

SFMI0669-001 04/01/2017

Rates Fringes

SPRINKLER FITTER (Fire Sprinklers).....$ 34.87 15.84

SHEE0007-004 07/01/2017

Rates Fringes

SHEET METAL WORKER (Including HVAC Duct Installation; Excluding HVAC System Installation).....$ 31.26 19.71

SUMI2011-004 02/01/2011

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...$ 25.23 1.80

IRONWORKER, ORNAMENTAL.....$ 18.48 7.93

LABORER: Landscape & Irrigation.....$ 10.38 0.50

OPERATOR: Bulldozer.....$ 19.68 6.64

OPERATOR: Compactor.....$ 17.68 6.70

OPERATOR: Tractor.....$ 19.10 8.48

TRUCK DRIVER, Includes Dump and Tandem Truck.....$ 17.26 11.42

TRUCK DRIVER: Lowboy Truck.....$ 14.50 0.44

TRUCK DRIVER: Tractor Haul
Truck.....$ 13.57 1.18

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO
is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification
and wage rates that have been found to be prevailing for the
cited type(s) of construction in the area covered by the wage
determination. The classifications are listed in alphabetical
order of "identifiers" that indicate whether the particular
rate is a union rate (current union negotiated rate for local),
a survey rate (weighted average rate) or a union average rate
(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed
in dotted lines beginning with characters other than "SU" or
"UAVG" denotes that the union classification and rate were
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of
the union which prevailed in the survey for this
classification, which in this example would be Plumbers. 0198
indicates the local union number or district council number
where applicable, i.e., Plumbers Local 0198. The next number,
005 in the example, is an internal number used in processing

the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests

for summaries of surveys, should be with the Wage and Hour
Regional Office for the area in which the survey was conducted
because those Regional Offices have responsibility for the
Davis-Bacon survey program. If the response from this initial
contact is not satisfactory, then the process described in 2.)
and 3.) should be followed.

With regard to any other matter not yet ripe for the formal
process described here, initial contact should be with the
Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an
interested party (those affected by the action) can request
review and reconsideration from the Wage and Hour Administrator
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the
interested party's position and by any information (wage
payment data, project description, area practice material,
etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an
interested party may appeal directly to the Administrative
Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

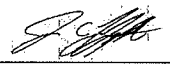
ATTACHMENT A – DEMOLITION SPECIFICATIONS

The following document was prepared by SME., under the supervision of a Project Designer accredited by the Michigan Department of Licensing and Regulatory Affairs under the requirements of Section 206 of the Toxic Substances Control Act and constitutes an asbestos abatement design in connection with:

ASBESTOS REMOVAL AND DEMOLITION
TECHNICAL SPECIFICATION SECTIONS
145 NEW TOWN AVENUE, 207 ROBERTSON AVENUE,
AND 4857 WEST COLUMBIA AVENUE
BATTLE CREEK, MICHIGAN
SME PROJECT 078112.00

SME Project Designer: Jason C. Lafayette

Accreditation Number: A36979

Signature: 

Date: January 31, 2018

ASBESTOS REMOVAL AND DEMOLITION
TECHNICAL SPECIFICATION SECTIONS
145 NEW TOWN AVENUE, 207 ROBERTSON AVENUE,
AND 4857 WEST COLUMBIA AVENUE
BATTLE CREEK, MICHIGAN
SME PROJECT 078112.00

SECTION 01 33 00
SUBMITTALS

PART 1 GENERAL

1.1 SUBMITTAL CLASSIFICTION

A. Submittals are classified as Owner Approved (OA) and For Information Only (FIO).

1.2 APPROVED SUBMITTALS

A. The approval of submittals by the Owner shall not be construed as a complete check but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist.

B. Upon completion of review of submittals requiring Owner approval (OA), the submittal will be identified as having received approval by being so stamped and dated.

1. Reservation of Rights
   The Owner reserves the right to require the Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the Owner from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to conduct testing where the technical specifications so prescribe or furnish samples to the Owner for testing. Additional time and expense necessary to comply with additional resubmittals required under this paragraph will not be the basis for any claims for time extension, delay, or extra cost on the part of the Contractor.

1.3 DISAPPROVED SUBMITTALS

When a submittal is returned to the Contractor and marked "DISAPPROVED" or "APPROVED AS NOTED, REVISE AND RESUBMIT", the Contractor shall make all corrections required by the Owner and/or Owner's Consultant and promptly furnish a corrected submittal in the form and number of copies as specified for initial submittal.

1.4 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. Additional time and expense necessary to comply with additional resubmittals required under this paragraph will not be the basis for any claims for time extension, delay, or extra cost on the part of the Contractor.

1.5 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with pertinent drawings shall be so scheduled. No delay damages or time

extensions will be allowed for time lost in late submittals. The Contractor shall carefully control its procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date

1.6 INFORMATION ONLY SUBMITTALS

Normally submittal for information only will not be returned by receipt thereof will be acknowledged. Owner Approval is not required on information only submittals. These submittals will be used for information purposes.

1.7 SUBMIT WITH PROPOSAL

The Contractor shall submit these bid submittals to the Owner's Consultant as part of the bid. The information is to be responded to in the same order as presented below. All employee submittals shall be alphabetized and placed in the consecutive order:

A. Education/Training
   Provide a roster of key personnel (project managers, supervisors, etc.), including subcontractors, who will work on the project that lists dates and type of training for each employee arranged in alphabetic order.

B. Experience/References
   1. List the company's last three projects.
   2. Include contacts for each of the projects with telephone numbers and addresses.
   3. Submit a copy of all licenses for each state in which the Contractor, and/or its subcontractors, is licensed to work.

C. Compliance/Enforcement
   1. Provide a description of any projects that have been halted by the owner, architect, engineer, industrial hygiene consultant, or any regulatory agency representative. Submit documentation as to the problem and the resolution.
   2. Submit copies of or documentation relating to any citations levied by any Federal, State, or local agency for violations related to asbestos or hazardous materials abatement activities. Include name or location of the project, dates, citation amount (if applicable) and how the allegations were resolved.
   3. Submit copies of any inspections by any regulatory agency on any project.

D. Insurance and Bonding
   1. Submit copies of insurance policies fulfilling the contract requirements. All insurance carriers must be licensed to write coverage in the State of Michigan.
      a) Asbestos/hazardous materials liability insurance in the amount of at least one million dollars of occurrence form will be required for this project.
      b) General Liability insurance in the amount of at least two million dollars of occurrence form will be required for this project.
   2. Submit a copy of the sample certificate to the Owner and the Owner's Consultant. The Owner (City of Battle Creek) and the Owner's Consultant (SME) are to be named additional insured on the policy. The certificate shall specifically reference the project name and location.
   3. Submit a copy of any exclusions to the insurance policies named above.

E. Plan of Action/Schedule of Work
   1. Submit a detailed plan of the procedures proposed for use in complying with the requirements of the project specifications. Include in the plan the location and layout of decontamination areas, the sequencing and sectioning of abatement work, methods to be used to assure the safety of visitors to the site, disposal plan including location of approved disposal site(s), and a detailed description of the methods to be employed to control contamination. The plan and schedule must be approved by the Owner's Representative and/or the Owner's Consultant prior to commencement of work.
   2. Provide a schedule of work with a schedule of labor that specifies the minimum number of workers to be dedicated to the job site for each phase of work and maximum number of man hours necessary to complete each phase of the work. The total number of work days, man hours, and minimum number of workers included shall reflect the maximum amounts of time and costs associated with completing the work for the project in accordance with the bids submitted.

1.8 NOTIFICATION

Upon award of the contract and upon receipt of the Notice to Proceed, send written notification to the Michigan Department of Environmental Quality-Air Quality Division (MDEQ-AQD) and to the Michigan Department of Licensing and Regulatory Affairs (MDLRA) Asbestos Program via overnight mail service, or online, in conformance with USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) and Michigan Act 135.

The NESHAP asbestos regulation 40 CFR Part 61, Subpart M requires that if at least 80 linear meters (260 linear feet) of friable asbestos materials, or at least 15 square meters (160 square feet) of friable asbestos materials, or other facility components are stripped or removed while renovating a facility, all the requirements of sections 61.147 apply.

The NESHAP regulation also requires submittal of an Intent to Renovate/Demolish notification at least 14 calendar days prior to demolition of a regulated building regardless of whether asbestos material are present within the building.

The State of Michigan Public Act 135 requirement for notification applies when demolition, renovation, or encapsulation of asbestos-containing materials is scheduled concerning ACM that is greater than (>) 10 linear feet or 15 square feet.

The project notification must include at minimum the following:

A. Name, address, and telephone number of owner or operator.

B. Description of facility being demolished or renovated, including the size, age, number of floors, present and prior use of the facility.

C. Procedures employed to detect presence of RACM, Category I, and Category II nonfriable ACM.

D. Estimate of the approximate amount of friable asbestos material present in the facility in terms of linear feet of pipe and surface area on other facility components.

E. Location and street address (including city, county and state) of the facility being demolished or renovated.

F. Scheduled starting and completion dates of asbestos removal.

G. Scheduled starting and completion dates of demolition or renovation.

H. Description of planned demolition or renovation and method(s) to be used.

I. Description of procedures to be used to comply with requirements, including asbestos removal and waste-handling emission control procedures.

J. Name and location of the waste disposal site where asbestos-containing waste material will be deposited.

K. The name and accreditation number of the Inspector who conducted the asbestos assessment of the structure as well as the name and address of the company employing the Inspector.

L. Certification that at least one person trained as required by paragraph (c)(8) of the Asbestos NESHAP regulations will be on-site and will supervise the asbestos removal and demolition operations described by the notification.

The Contractor shall submit the notification to regulatory agencies by overnight mail, or online, with copies of the receipts(s) and notifications forwarded to the Owner and the Owner's Consultant.

1.9 PROJECT SUBMITTALS AT COMMENCEMENT OF WORK

A. **Contractor Submittals**: Before commencement of work for this project deliver two (2) copies of the following submittals to Owner and the Owner's Consultant:

1. Written standard operating procedures, a respiratory protection program meeting the requirements of 29 CFR 1910.134 (if respiratory protection is to be used), and a Hazard Communication program meeting the requirements of 29 CFR 1910.1200.
2. Completed insurance certificates and full copies of the insurance policies as required by the project. City of Battle Creek (*Owner*) and SME (*Owner's Consultant*) are to be named additional insured on the insurance certificates. The certificates shall specifically reference the project name and location.
3. For asbestos work included in the contract, copies of all personnel training certificates, State of Michigan accreditation, certifications of medical surveillance, respiratory fit testing for the employees who will be assigned the work if the documentation submitted with the proposal has or will change. (No employee will be allowed to work without complete documentation).
4. Product Data and Safety Data Sheets (SDS) for all materials to be used during the project.
5. Copy of state or local license for waste transporter(s).
6. Name and address of the landfill(s) or treatment/disposal facilities or recycling facilities where asbestos-containing waste materials and other hazardous materials and project wastes are to be disposed or recycled. Include contact person(s) and telephone number(s).
7. Site Health and Safety Plan.

B. **Administrative Submittals**: Refer to other Sections of the project manual for requirements pertaining to administrative submittals.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 SUBMITTAL PROCEDURES

The Owner and Owner's Consultant reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

No extension of contract time will be authorized because of failure to transmit submittals to the Owner's Representative or Owner's Consultant sufficiently in advance of the work to permit processing.

A. **Submittals**: Submit 2 copies of each submittal required. Submit at least one copy of each submittal unbound. The Owner will return the one copy as needed marked with action taken and corrections or modifications required.

Unless noncompliance with the project specifications provisions is observed, the submittal may serve as the final submittal.

B. **Closeout Submittals**: Submit 2 copies of each required closeout submittal. Submit at least one copy of each submittal unbound. Refer to SECTION 01 77 19 PROJECT CLOSEOUT and to individual sections of the Project specifications for specific submittal requirements of project closeout information.

END OF SECTION 01 33 00

SECTION 01 77 19
PROJECT CLOSEOUT

PART 1 GENERAL

Project Closeout is the term used to describe certain collective project requirements that indicate completion of the work and must be fulfilled near the end of the Contract time in preparation for final acceptance of the work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

1.1. RELATED DOCUMENTS

A. Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.2 SUMMARY

This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

A. Inspection procedures.

B. Project final record document submittal.

C. Submittal of warranties.

D. Final cleaning.

E. Closeout requirements for specific construction activities are included throughout the various project documents.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following listing exceptions in the request:

1. In the Application for Payment that coincides with, or first follows the date substantial project completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
2. Advise the Owner of pending changes in insurance coverage. Submit evidence of final continuing insurance coverage complying with the insurance requirements.
3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents. Include certificates of insurance for products and completed operations where required.
4. Obtain and submit releases enabling the Owner unrestricted use of the Project Site.
5. Submit final project photographs, damage or settlement survey, and similar final record information.
6. Discontinue or change over and remove temporary facilities from the site, along with construction tools, barricading devices, and similar elements.
7. Complete final clean up requirements, including all "punch list" items.

8. The Contractor shall notify the Owner's Representative and Owner's Consultant once the project work is substantially complete.

B. Inspection Procedures

1. Upon receipt of the Contractor's notice, the Owner's Representative will inspect the work completed, including punch-list items resulting from earlier inspections, to assess whether the work has been substantially completed.

2. The Owner's Representative will either proceed with inspection or advise the Contractor of unfilled requirements. If necessary, the Owner's Representative will repeat the reinspection procedure at the expense of the Contractor when requested.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for Final Payment, complete the following listing exceptions in the request:

1. Submit the Final Payment Request with releases and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Owner.

1.5 RECORD DOCUMENT SUBMITTALS

A. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's and/or Owner's Consultant's reference during normal working hours. Note related Change Order numbers where applicable.

1. Miscellaneous Record Submittals: Specific requirements for record documents are indicated in the individual Sections of the project manual. Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. General submittal procedures are outlined in Section 01 33 00 - Submittals. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.

2. Submit to the Owner's Representative for the Owner's records:

a. Copies of all daily logs and safety inspection reports completed during the project.

b. Copies of all sign-in rosters and visitors logs.

c. Copy of USEPA-NESHAP Notification of Intent to Renovate/Demolish.

d. Copies of all regulatory agency inspection documentation.

e. Copies of all recycling receipts, bills of lading, and disposal manifests/receipts, including completed NESHAP Waste Shipment Record for all asbestos-containing waste generated by abatement activities and transported from the project site.

f. Copies of all incident reports.

g. Additions to scope of work: Change Order proposals.

h. Correction of work: Completed punch list.

i. Contractor's Liability Insurance certificates (including guarantee period).

j. Waivers of mechanics liens from every entity who may lawfully be entitled to file a mechanics lien arising out of the contract and related to the work.

k. Documentation that all taxes, fees, and similar obligations required to facilitate and complete the project have been paid/satisfied.

l. All other documents as indicated in these specifications.

m. Copies of all closeout documents related to the asbestos removal activities as found in Section 02 82 13, including completed Worker Acknowledgement forms for each worker conducting asbestos removal activities and Certificates of Visual Inspection for each asbestos removal area signed by the Contractor's Competent Person or Abatement/Demolition Superintendent.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION

3.1 Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

3.2 Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the sites and dispose of in a lawful manner.

3.3 Notify the Owner's Representative and Owner's Consultant when the Work will be substantially complete and ready for inspection. The Contractor's superintendent shall be present at the time of the inspection. A list of minor replacement, correction, and adjustment items will be prepared.

3.4 Complete all listed deficiencies by the date set by the Owner for final acceptance.

END OF SECTION 01 77 19

SECTION 02 40 00
DEMOLITION

PART 1 GENERAL

1.1 SCOPE OF WORK

A. All work item numbers included in the Bid Schedule.

The Contractor shall complete the work within the specified time limits of the contract. All time limits stated in the project specifications and contract documents are of the essence of the contract. Should the Contractor fail to complete all of the work by the completion dates stipulated, the Owner shall have the right to suspend all future payments and/or invoke liquidated damages as specified in the project specifications and contract documents.

1.2 RELATED SECTIONS

A. Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCE STANDARDS

Except to the extent that more stringent requirements are written directly into the Contract Documents, 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.

A. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR Part 1926.1101 AND 29 CFR Part 1910.134.

B. ANSI – American National Standard Practices for Respiratory Protection ANSI Z88.2-1980.

C. NIOSH – National Institute for Occupational Safety and Health

D. MSHA – Mine Safety and Health Administration

1.4 SUBMITTALS

A. Work Plan

Prior to proceeding with the demolition, removal and disposal work, the Contractor shall submit a Work Plan which includes the means, methods and procedures proposed for the accomplishment of the removal and disposal work. The means, methods and procedures shall provide for safe conduct of the work; careful removal and disposition of buildings and structures, and solid materials and wastes; and protection of property that is to remain undisturbed. The procedures shall provide a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. The name and location of disposal facilities for all

removed materials shall be submitted in the Work Plan. The Work Plan shall be based on work experience and the guidance provided in this specification. The cost of Work Plan preparation is incidental to the project and shall be included in the Base Bid for demolition.

B. Inspection Reports

The Contractor shall provide a copy of the records of inspections and tests, as well as records of any corrective action taken to address any problems encountered.

C. Disposal Documents

The Contractor shall provide copies of all licenses, certifications, permits, agreements, manifests, waste shipment records, weigh tickets, meter recordings, delivery tickets, and receipts required or issued for the disposal of materials, the methods used, and the disposal areas and facilities. The Contractor shall also provide a copy of the results of characterization testing performed to comply with the requirements of each disposal facility.

D. Manifests

The Contractor shall submit a copy of the official manifest for each shipment of removed materials including, but not limited to, building and structure debris, concrete and brick debris, and miscellaneous site debris and solid wastes evidencing delivery of the material to an approved licensed disposal facility. All manifests shall be in accordance with the requirements of all the applicable federal, state and local regulations. The Contractor's superintendent shall coordinate with the Owner and Owner's Consultant to provide documentation of waste materials transported from the Project Site each day.

1.5 PROJECT/SITE CONDITIONS

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

A. Electrical Disconnection

The Contractor shall verify that on site electrical wiring to be demolished or in close enough proximity to be damaged by the demolition operations shall be disconnected, de-energized, and/or relocated prior to proceeding with demolition operations. The Contractor shall verify that operational electrical equipment is not present in all structures to be demolished. Any such equipment shall be disconnected and/or de-energized prior to proceeding with demolition operations. The Contractor shall coordinate with the local electrical utility company for any necessary relocation of utilities and include any associated fees or expenses in the Base Bid for demolition.

B. Water Disconnection

The Contractor shall verify water lines on site or in close enough proximity to be damaged by the demolition operations are disconnected or capped at the main, or closed at the gate valve, as directed by the Owner, prior to proceeding with demolition operations.

C. Sewer Disconnection

The Contractor shall locate all sanitary sewer connections and floor drains at the Project Site. Sewer connections shall be removed during excavation and capped at the Project Site boundary.

The sewer pipes adjacent to the Project Site must be preserved and protected during demolition and excavation. Adjacent storm water catch basins must also be preserved and protected during demolition to allow for continued adequate storm water drainage after the conclusion of this project. Any costs for repair/replacement of sewer pipes or catch basins damaged by the demolition or excavation activities shall be the sole responsibility of the Contractor. No additional compensation will be provided for repair/replacement of sewer pipes or catch basins.

D. Gas Disconnection

The Contractor shall verify that on site combustible gas pipes/mains entering all structures included in the scope of work or in close enough proximity to be damaged as a result of the demolition operations shall be disconnected and/or capped prior to proceeding with demolition operations. The Contractor shall coordinate with the local natural gas utility company for any necessary relocation of utilities and be responsible for any associated fees or expenses, which are to be included in the Base Bid for the work.

E. Telephone and Cable Disconnection

The Contractor shall verify that on site telephone or electronic data lines/conduits entering all structures or in close enough proximity to be damaged as a result of the demolition/excavation operations shall be disconnected and/or relocated prior to proceeding with demolition operations. The Contractor shall coordinate with the local telephone and cable companies for any necessary relocation of utilities and be responsible for any associated fees or expenses.

1.6 GENERAL REQUIREMENTS

A. Demolition

The work includes demolition of the Project Site structures and removal of resulting rubbish and debris associated with demolition activities at the Project Site. Rubbish and debris shall be removed from the Project Site daily, unless otherwise directed, to avoid accumulation at the Project Site. Materials that cannot be removed daily shall be stored in areas as specified by the Owner or Owner's Consultant. In the interest of safety, the work shall be performed with regard to the protection of personnel and property.

The Contractor shall remove the asbestos-containing fire door in the 145 New Town Avenue structure, and the asbestos-containing fibrous board located in the 207 Robertson Avenue residence, in accordance with the Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard (29 CFR Part 1926.1101), and prior to demolition of the structures. Detectable concentrations of asbestos were also reported in the joint compound associated with the wallboard wall system in the 207 Robertson Avenue residence and will remain in the structure during demolition. Demolition activities shall be conducted in accordance with the OSHA Asbestos Construction Standard. Should the Contractor elect to remove the trace asbestos wallboard prior to demolition, all costs associated with the removal effort shall be at the expense of the Contractor. The Contractor shall complete the work within the specified time limits of the contract. All time limits stated in the project specifications and contract documents are of the essence of the contract. Should the Contractor fail to complete all of the work by the completion dates stipulated, the Owner shall have the right to suspend all future payments and/or invoke liquidated damages as specified in the project specifications and contract documents.

B. Dust Control and Air Monitoring

The Contractor shall take all necessary means and procedures to measure and control dust generated by the demolition operations. The Contractor shall prevent, to the maximum extent practical, airborne dust from impacting the surrounding properties as a result of the demolition operations. At no time shall the concentration of aerosol dust resulting from the Contractor's activities exceed ten (10) parts per million for longer than 10 minutes during the site activities and dust levels shall not exceed 20% opacity over a 10 minute average, as measured by real-time aerosol particle monitoring (such as a TSI DustTrak or comparable equivalent). The responsibility and costs for the dust monitoring shall be borne solely by the Contractor. The costs for dust monitoring are incidental to the contract and shall be included in the Base Bid for demolition.

C. Protection of Personnel

During the demolition work, the Contractor shall continuously evaluate the conditions of the items being demolished and take immediate action to protect all personnel working on and around the Project Site. No area, section, or component of floors, walls, or other structural elements will be allowed to be left standing without sufficient bracing, shoring, or lateral supporting to prevent collapse or failure while personnel perform other work in the immediate area. 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.

The Contractor shall utilize wet methods, demarcate the demolition site as an asbestos work area, and comply with other applicable provisions of the OSHA Asbestos Construction Standard during the performance of demolition activities.

Contractor shall provide interim personal protective equipment (PPE) and perform employee exposure air monitoring during demolition as specified in SECTION 02 82 13.02, WORKER PROTECTION-ASBESTOS ABATEMENT and SECTION 02 82 13.03, RESPIRATORY PROTECTION-ASBESTOS ABATEMENT. The costs associated with providing demolition personnel with appropriate asbestos PPE and conducting exposure air monitoring are incidental to the project and shall be included in the Base Bid for demolition.

D. Protection of Existing Work

The Contractor shall carefully assess the existing conditions and examine the drawings and specifications to determine the extent of work.

E. Ownership

The Contractor shall have rights of salvage and claim to any items or components of items to be demolished as well as debris generated by the demolition. The Contractor shall be responsible for the removal and disposal of materials and debris in a fashion that complies with all local, State and Federal codes 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 Project Site.

F. Sequencing and Scheduling

Contractor shall perform work in such a way so that any asbestos or contaminated materials discovered on site, or as designated by the Owner and Owner's Consultant, shall be removed or cleaned-up prior to demolition or debris removal to protect the safety and health of all personnel.

G. Burning and Explosive

Burning waste and debris materials are prohibited. Use of explosives for controlled demolition is not permitted.

1.7 PERMITS

The permits described here cover the general description of the permits called for demolition. The permits described below are not necessarily all of the permits required for completion of this project. The costs associated with obtaining the necessary permits required to complete the demolition activities are incidental to the project and shall be included in the Base Bid for demolition.

A. Demolition Permit

The Contractor shall be responsible for obtaining a Demolition permit from the City of Battle Creek. The Contractor shall contact the City of Battle Creek at least 24 hours prior to construction or disconnection of utilities for all work within alleys, easements and public rights-of-way. In addition, if necessary, the Contractor shall obtain a permit from the Michigan Department of Transportation (MDOT) or Calhoun County to perform demolition work in adjacent rights-of way. The Contractor is responsible for all permits and associated permit costs are incidental to the contract and to be included in the Base Bid for the work.

B. Notification of Intent to Renovate/Demolish required by USEPA National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40 CFR 61 M).

The Contractor shall be responsible for filing a *Notification of Intent to Renovate/Demolish* form required by the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations and payment of any fees associated with submitting the form to the Michigan Department of Environmental Quality-Air Quality Division (MDEQ-AQD). The notification shall be completed in its entirety, including a description of the abatement and demolition tasks to be conducted, and the quantities of asbestos-containing materials (ACMs) to be removed. The *Notification of Intent to Renovate/Demolish* form must submitted to the MDEQ-AQD at least 10 working days (14 calendar days) prior to demolition, regardless of whether or not ACMs are present in the building. A ten calendar day notification to the Michigan Department of Licensing and Regulatory Affairs (MDLRA) Asbestos Program is required when greater than 10 linear feet or 15 square feet of asbestos will be removed during a renovation or demolition. If greater than 160 square feet, 260 linear feet, or 35 cubic feet of asbestos will be removed, a 10 working day (14 calendar day) notification to the MDEQ-AQD is required. The *Notification of Intent to Renovate/Demolish* form is used for both the MDEQ-AQD and MDLRA notifications. This form can be downloaded from the MDEQ's website.[1]

1.8 DUST CONTROL

A. The Contractor shall employ all necessary engineering controls and misting operations to ensure that the demolition debris remains adequately wetted at all times during the building demolition to prevent emission of dust and migration of airborne materials off site and impacting surrounding properties.

B. The Contractor shall prevent, to the maximum extent practical, airborne dust from impacting the surrounding properties as a result of the demolition operations. At no time shall the concentration of aerosol dust resulting from the Contractor's activities exceed 0.01 fibers per cubic centimeter (f/cc), as measured by the Owner's Consultant via ambient air sampling and analyses by phase contrast microscopy (PCM) if requested by the Owner. If at any time during demolition activities, total fiber concentrations exceed 0.01 f/cc, the Contractor shall utilize additional dust suppression methodology until fiber analyzed fiber concentrations are shown to be below acceptable limits. The responsibility and costs for dust control shall be borne solely by the Contractor.

C. Due to the presence of the trace asbestos wallboard wall system, recurrent, systematic watering will be required for the work associated with the 207 Robertson Avenue structure to prevent dust emissions during the demolition and removal operations. The Contractor shall supply water for dust control. Water may be

[1] Notification of Intent to Renovate/Demolish Form: http://www.michigan.gov/deq/0,1607,7-135-3310_4106-11856--,00.html

available for use from the fire hydrants located along Columbia Avenue, subject to the use requirements and fees from the City of Battle Creek. The Contractor shall include the costs for water supply in the Base Bid. Use of water shall not result in or create hazardous or objectionable conditions such as ice, flooding, pollution and electrical shock.

D. The Contractor shall employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles, and equipment.

E. If the Contractor desires to temporarily stockpile any demolition debris and pulverized concrete materials that may generate dust at the Project Site, the stockpiles shall be placed at locations approved by the Owner and appropriately secured to prevent unauthorized access to the debris. Due to the presence of trace asbestos wallboard, demolition debris associated with the 207 Robertson Avenue structure shall be promptly loaded and disposed at a landfill licensed to accept the waste.

1.9 DEMOLITON AND REMOVAL

A. Buildings and Structures

The Contractor shall demolish and remove all buildings, structures, pavements, and above-grade features on the Project Site. The Contractor shall excavate and remove building(s) foundations, structural steel, soil, and debris and restore the Project Site to grade as specified in SECTION 31 23 00, EXCAVATION, BACKFILL, AND COMPACTION; and SECTION 32 92 00, TURFS AND LAWNS. Debris piles resulting from the work shall be removed and disposed of in their entirety prior to restoration of the Project Site. Pavement shall be cut at the property lines with paved surfaces on the Project Site removed for disposal. The Contractor shall seal the cut edges of pavement surfaces to limit degradation of the pavement extending into adjoining properties.

B. Utilities

The Contractor shall submit a utility locating request to the MISS-DIG system to demarcate underground utility locations 72 hours prior to the initiation of the project work. The Contractor shall identify any active utilities on and adjacent to the Project Site. The Contractor shall be responsible for the deactivation of powered utilities as necessary for the safe conduct of work and protection of workers and the public.

The Contractor shall protect and preserve all utilities adjacent to the Project Site prior to proceeding with demolition operations and during commencement of demolition and excavation. The Contractor shall cut and cap subsurface utilities at the Project Site boundaries. The Contractor shall, at his expense, be responsible for coordinating with the City of Battle Creek and utility service providers to ensure that water, electrical, gas and other utilities are disconnected prior to demolition.

C. Groundwater Wells

The Contractor shall identify and properly abandon all potable drinking water wells and environmental monitoring wells. Abandonment of wells shall be conducted in accordance with all federal, state, and local regulations. Permitting fees and expenses for well abandonment shall be at the expense of the Contractor and should be inclusive to the Base Bid for the project.

D. Hazardous Contaminated Materials

The removal and disposal of hazardous contaminated materials exposed as a result of the demolition activities shall be handled as detailed in applicable sections of the Project Specifications. Other potentially hazardous or contaminated materials not specified which are exposed during the demolition and removal shall immediately be brought to the attention of the Owner's Consultant representative on site and documented in writing within 24 hours of discovery.

All demolition and removal work shall be performed in compliance with 29 CFR 1926.1101, OSHA Asbestos Standard for Construction; 29 CFR 1926.62, OSHA Lead Exposure in Construction Standard; and 29 CFR Part 1926.1127, OSHA Cadmium Construction Standard.

Care must be taken to prevent the mixture of non-hazardous debris and waste materials with regulated hazardous materials. Non-hazardous materials must also be prevented from coming in contact with materials identified as being hazardous, so as to prevent increasing the volume of hazardous materials (by contact).

E. Asbestos Containing Materials

The Contractor shall remove and dispose of asbestos materials, in conformance with the requirements of SECTION 02 82 13, ASBESTOS ABATEMENT prior to beginning demolition work of structures.

F. Polychlorinated Biphenyl (PCB) Contaminated Materials

The Contractor shall remove, segregate from other material, and dispose of PCB contaminated materials. If PCB contamination for the waste materials is greater than the Toxic Substance Control Act (TSCA) criterion (refer to SECTION 02 84 00, PCB-CONTAINING EQUIPMENT REMOVAL), the waste material shall be handled as a TSCA waste. The removal and disposal of PCB-contaminated material shall be completed prior to demolition.

When conducting work involving PCBs, the Contractor shall implement handling, disposal, waste manifesting, and recordkeeping requirements, as set forth in 40 CFR 761 – Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions and as specified in SECTION 02 84 00, PCB-CONTAINING EQUIPMENT REMOVAL.

G. Miscellaneous Regulated Materials

The Contractor shall remove, segregate from other material, and dispose of all miscellaneous regulated materials in accordance with all federal, state, and local regulations and SECTION 02 90 00, MISCELLANEOUS REGULATED MATERIALS.

1.10 RECYCLING

The Contractor shall maximize recycling of non-contaminated material found or demolished on Project Site in order to reduce costs, shorten project duration, and demonstrate sustainable demolition practices. Although the materials are not limited, it is recommended that only steel and concrete be recycled. Concrete to be recycled can be stockpiled on site, at a location approved by the Owner, and eventually removed. Steel separated from demolition rubble may be recycled and becomes the property of the Contractor. The Contractor will not be permitted to conduct on-site abatement of lead-bearing or cadmium-bearing paint found on steel unless appropriate procedures and federal, state and local codes or regulations are followed. Materials stockpiled for recycling shall be removed within 10 days of completion of demolition activities, and prior to restoration of the Project Site.

1.11 CONSTRUCTION WATER

Water use for demolition operations to control the emission of airborne dust shall be in accordance with all Federal, State and local codes and regulations. Water used for the removal of asbestos materials shall be collected and processed in accordance with specific Federal and State requirements with respective to the asbestos abatement and as detailed in these specifications.

1.12 DISPOSAL

The building and foundations required to be demolished and removed, as well as all miscellaneous inert debris, waste, and unsatisfactory materials resulting from this work, unless otherwise specified or directed by the Owner, shall be removed from the Project Site. All disposals shall conform to Federal, State and local requirements. All removed materials shall be documented by manifests and disposal facility tickets with copies given to the Owner's Consultant within 48 hours after removal from the Project Site. Waste Shipment Records required by USEPA NESHAP regulations for shipments of asbestos waste must be completed and returned to the Owner within 35 days of removal from the Project Site.

1.13 RESTORATION

A. After removal of trailers, materials, and equipment from within the construction fenced area, the Contractor shall restore impacts to the Project Site caused by the demolition and removal work.

B. Upon completion of the project, the Contractor shall fill depressions created by removal of subsurface features and utilities with clean fill material approved by Owner, and compact to the specifications outlined in SECTION 31 23 00, EXCAVATION, BACKFILL, AND COMPACTION. The Contractor shall smoothly grade the Project Site for positive drainage and rake/level graded materials.

C. The Contractor shall properly prepare the Project Site to receive grass seed as specified in SECTION 32 92 00, TURFS AND LAWNS.

1.14 QUALITY CONTROL

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, gas and water disconnection verified.
B. Dust Control.
C. Soil Erosion and Sediment Control.
D. Noise and vibration control.
E. Demolition, removal and cleanup.
F. Disposal.
G. Observance of safety regulations.
H. Observance of environmental regulations.

1.15 PROJECT CLOSEOUT

Project Closeout is the term used to describe certain collective project requirements that indicate completion of the work and must be fulfilled near the end of the Contract time in preparation for final acceptance of the work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract:

Submit the following documents related to asbestos abatement and asbestos demolition activities to the Owner's Representative and Owner's Consultant for the Owner's records:

A. Copies of all daily logs and safety inspection reports for abatement activities completed during the project.
B. Copies of all sign-in rosters and visitors logs for abatement work areas.
C. Copy of USEPA-NESHAP Notification of Intent to Renovate/Demolish form submitted for abatement and demolition.
D. Copies of all asbestos-related regulatory agency inspection documentation.
E. Copies of all recycling receipts, bills of lading, and disposal manifests/receipts, including completed NESHAP waste shipment record for all asbestos-containing waste generated and transported from the Project Site.
F. Additions to scope of work and change order proposals.
G. Contractor's asbestos/pollution liability insurance certificates (including guarantee period).

H. Waivers of mechanics liens from every entity who may lawfully be entitled to file a mechanics lien arising out of the contract and related to asbestos work (abatement or demolition).
I. Documentation that all taxes, fees, and similar obligations required to facilitate and complete the asbestos abatement and demolition project have been paid/satisfied.
J. Copies of all closeout documents related to the asbestos removal activities including but not limited to: evidence of workers' training, accreditation, medical surveillance, and respirator fit testing; negative pressure monitoring logs (recorded manometer readings for NPE work areas); exposure monitoring data; completed worker acknowledgement forms for each worker conducting asbestos removal activities; and certificates of visual inspection for each asbestos removal area signed by the contractor's competent person/abatement superintendent.
K. Trucking tickets and certification of clean source origin for all backfill and grading materials imported onto the Project Site.
L. Copies of permits and well abandonment logs submitted to the MDEQ and governing agencies.
M. Copies of Soil Erosion and Sediment Control documentation.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION (not used)

END OF SECTION 02 40 00

SECTION 02 40 00.01
DEMOLITION SITE PREPARATION

PART 1 GENERAL

1.1 SITE PLAN

A. The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be used for material stockpiles, employee and/or vehicle/equipment parking/storage, the number of trailers to be used, avenues of ingress/egress to the fenced construction area, vehicle and decontamination units within the Project Site. Any areas anticipated for use as access roads or which may have to be graveled to prevent the tracking of mud shall also be identified and permission gained from the City of Battle Creek and/or the Michigan Department of Transportation (MDOT), as necessary. In addition, the Contractor shall identify the location, size and type of vehicle and personnel decontamination units.

B. Identification of Employees

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display identification. Identification shall be kept on site during periods when an employee is not engaged in work. Contractor and subcontractor personnel shall wear identifying markings on hard hats or wear identification badges clearly identifying the company for whom the employee works.

C. Employee Parking

1. Contractor employee parking shall not interfere with the progress of work. Vehicles leaving the Project Site that become contaminated while within the Project Site or vehicles specified by the Owner or Owner's Consultant shall pass through the vehicle decontamination unit.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

A. The Contractor shall furnish and install all temporary facilities and controls required by the work, shall remove them from the Project Site upon completion of the Work, and shall restore the grounds and existing facilities to their original condition.

B. Payment and Utility Services

The Contractor shall arrange for such utilities as required. The amount of each utility service consumed shall be charged to or paid for by the Contractor. The Contractor shall carefully conserve any utilities. Costs for temporary utility services are to be included in the Base Bid for demolition.

C. Meters and Temporary Connections

The Contractor, at its expense and in a manner satisfactory to the City of Battle Creek or applicable utility owner, shall provide and maintain necessary temporary connections, distribution lines, meters, and meter bases required to measure the amount of each utility used for the purpose of determining charges unless this service is provided by the local utility company. If applicable, the Contractor shall notify the local utility company in writing at least five (or as required by the respective utility company) working days before final utility disconnection is desired so that a utilities contract can be established. Under no circumstances shall the Contractor make the final utility disconnections unless approved by the Owner in advance.

If available, the Contractor may utilize one of the hydrants located in the adjacent road right-of-ways for the purpose of water supply during abatement and demolition activities. The Contractor will be required to obtain permit for hydrant usage through the City of Battle Creek. Fees for the permit will include a security deposit, ready to serve, and consumption at 1.5 times the current city commodity rate as defined by the Fee Bond and Insurance Schedule. Copies of the Fee Bond and Insurance Schedule may be obtained at the following website: (http:/www.battlecreekmi.gov/DocumentCenter/View/81). A copy of the Special Provisions Fire Hydrant Use Permit included in the Project Specifications. The Contractor will be responsible for costs associated with any damage to the hydrant or meter as stated in the permit.

D. Sanitation

The Contractor shall provide, and maintain within the construction area, minimum field-type sanitary facilities. The sanitation facilities shall be per applicable federal, state and local regulatory requirements. All the related costs are incidental to the project and shall be included in the Base Bid for the work.

E. Telephone/Facsimile

The Contractor shall make arrangements and pay all costs for telephone/facsimile facilities desired.

1.3 PROJECT SIGNING

A. Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof plexi-glass covered bulletin board not less than 915 by 1220 mm (36 by 48 inches) in size for displaying the Equal Employment Opportunity poster, grant funding notices, and other information required to be posted. The bulletin board shall be located at the Project Site in a conspicuous place easily accessible to all employees. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work, the bulletin board shall be removed by and remain the property of the Contractor.

B. Project and Safety Signs

The requirements for the signs, their content, and location shall be as outlined in the specification or as deemed necessary by the Contractor, local governing body, or the Owner. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the Project Site.

1.4 BARRIER AND ENCLOSURES

A. The Contractor shall furnish, install, and maintain as long as necessary adequate barriers, warning signs, or lights at all dangerous points throughout the Work for protection of property, workers, and the public. The Contractor shall remove such material when deemed no longer required. The Contractor shall hold the Owner and Owner's Consultant 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 shall entirely enclose the Project Site by means of woven wire fence having a minimum height of six (6) feet. Gates shall be provided at all points of access. Gates shall be closed and secured in place with locks at all times when Work under the Contract is not in progress. The fence shall be removed and ground restored to original condition upon completion of the Work.

1.5 DECONTAMINATION

A. The Contractor shall provide, operate and maintain decontamination units for personnel, equipment, and vehicles at the Project Site as approved by the Owner and Owner's Consultant. The decontamination unit shall serve to remove, to the best extent possible, soil and debris from equipment and vehicles before they exit the Project Site.

B. All vehicles that come in contact with contaminated material and/or as specified by the Owner's Consultant shall pass through the decontamination unit. Soils or contaminants shall be removed and properly handled by the Contractor. At a minimum, the Contractor shall provide wheel and under carriage wash using high-pressure water or steam. The rinse waters used in the operation shall be collected and stored, sampled and disposed of based on the analytical results of the testing coordinated by the Contractor. All the related costs are incidental to the project and shall be included in the Base Bid.

1.6 DUST CONTROL AND AIR MONITORING

A. The Contractor shall provide necessary engineering controls to prevent emission of aerosol dust and migration of airborne materials to surrounding properties. The Contractor shall monitor airborne dust levels and ensure that airborne dust levels do not exceed the regulatory limits. At no time shall the concentration of aerosol dust resulting from the Contractor's activities exceed ten (10) parts per million (ppm) for more than 10 minutes during the site activities and dust levels shall not exceed 20% opacity over a 10 minute average. If airborne dust levels as measured using real-time aerosol particle counter exceed 10 ppm or 20% opacity for more than 10 minutes, the Contractor shall stop operations until levels are below 10 ppm and/or 20% opacity for at least ten (10) minutes.

B. Prior to commencement of demolition and during all demolition activities associated with the 207 Robertson Avenue structure, the Contractor shall adequately wet the structure and demolition debris to prevent visible emissions during demolition and keep associated debris wetted until it is transported for disposal.

1.7 PROTECTION AND MAINTENANCE OF TRAFFIC

A. The Contractor shall minimize public traffic interference on roads selected for hauling material to and from the Project Site. The Contractor shall investigate the adequacy of existing roads and the allowable load limits on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations. The Contractor shall minimize public road impacts from construction operations.

C. For demolition debris or site soils being trucked onto public roads, the Contractor shall provide a street-sweeper/cleaner to maintain the affected public roads. The cleaning operation shall be conducted as required and determined by the City of Battle Creek, Calhoun County, the Owner and Owner's Consultant. Street-cleaning operations necessary to satisfy the requirements are incidental to the project and associated costs shall be included in the Base Bid.

D. Barricades

1. The Contractor shall erect and maintain temporary barricades to limit public access to the construction areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic.

2. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.8 CONTRACTOR'S TEMPORARY FACILITIES

A. Maintenance of Construction Area

Fencing shall be kept in a state of good repair and proper alignment.

B. Security Provisions

The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office and surrounding area. Other security items, such as lighting, shall be the responsibility of the Contractor including all fees.

C. Storage Facilities

The Contractor shall be responsible for providing and maintaining storage facilities for decontamination water, storm water and other water generated and/or collected on site; and other project related materials and items.

1.9 CLEANUP

A. Construction debris, waste materials, and discarded packaging material created by the Contractor's operations shall be removed from the Project Site daily.

B. Any soil or mud that is tracked onto paved or surfaced roadways shall be cleaned, at a minimum, on a daily basis or as necessary to maintain the roadway in a clean, operable condition.

C. Uncontaminated or decontaminated salvageable materials may be stored at the Project Site with Owner's approval. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored and must be removed from the Project Site within 10 days of completing demolition activities.

1.10 PERFORMANCE OF WORK

A. The work shall be performed by properly trained and equipped contractor personnel. All intrusive work shall be performed by properly trained and equipped contractor personnel All intrusive work involving potential contact with hazardous materials shall be conducted by Contractor personnel that have completed initial and annual OSHA training and medical surveillance, in accordance with 29 CFR 1910.120 (e) and (f).

B. The work described in the Specifications will be performed under the observation of the Owner's Consultant acting on behalf of the Owner.

1.11 PROJECT COORDINATION

A. Prior to beginning work the Contractor shall meet with the Owner and Owner's Consultant to establish the schedule for the project. Once the project is started, it shall be carried to completion without delay.

B. Phasing of Work shall be clearly established and verified with the Owner prior to commencing work in any area. No demolition or materials removal work shall begin until authorized by the Owner and Owner's Consultant.

C. The Contractor shall conduct utility clearance prior to excavation activities. Contact MISS-DIG at least 72 hours prior to start of excavation activities.

1.12 SPECIAL WORKING CONDITIONS

A. The Work comprising this project will be performed at a site owned by City of Battle Creek and the work will be governed by the Owner's requirements. The

Contractor shall comply with all rules and policies pertaining to such sites and shall conform to following special working conditions.

B. The Contractor shall provide a competent Superintendent, whose qualifications and experience are satisfactory to the Owner, on the Project Site at all times during working hours with full authority to act for the Contractor. It shall be the Contractor's responsibility to furnish the Owner with the name, address and telephone number of the responsible person to contact for emergencies during after hours, weekends, and holiday periods.

C. Heavy equipment, such as bulldozers and power shovels, shall be locked or immobilized in an acceptable manner when not in use. No tools, small pipe, copper or wire shall remain on-site overnight unless acceptably locked inside shanties or tool chests. The Contractor shall be responsible for furnishing all labor, materials, and equipment necessary to complete the work.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION (not used)

END OF SECTION 02 40 00.01

SECTION 02 60 00
HAZARDOUS CONTAMINATED MATERIALS

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Building Components (e.g. electrical equipment boxes and lighting system fixtures) may contain hazardous materials. In addition, other areas may contain hazardous contaminated materials. The hazardous material may include lead-bearing and cadmium-bearing paint, asbestos, PCBs, mercury contaminated materials (such as mercury switches, fluorescent light tubes, and high-intensity discharge lamps), discarded tires, and smoke detectors containing radioactive elements. The hazardous materials shall be removed and recycled or disposed at waste facilities licensed to accept such wastes.

B. The removal and disposal of hazardous contaminated materials shall follow all federal, state, and local regulatory requirements and shall be conducted as specified herein.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 SUBMITTALS

A. Work Plan - The Contractor shall submit a work plan including the procedures proposed for the accomplishment of removal and disposal of hazardous materials prior to proceeding with any removal and disposal work.

1. The Work Plan shall provide a detailed description of the methods and equipment to be used for each operation (such as sampling, staging, etc.), health and safety plan, confined space entry, and sequence of operations.

2. No work at the Project Site, with the exception of site inspection and mobilization, shall be performed until the Work Plan is approved. The cost of Work Plan preparation is incidental to the project and is to be included with the Base Bid. No adjustment for time or money will be made for resubmittals required as a result of noncompliance.

B. Disposal Documents

1. The Contractor shall submit a report summarizing all activities stated in this section including a copy of the records for disposal or recycling of hazardous contaminated materials.

2. The Contractor shall provide 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 of materials, the methods used, and the disposal areas and facilities.

C. Manifests

The Contractor shall submit a copy of the official manifest for each shipment of removed hazardous materials to an approved licensed disposal facility. All manifests shall be in accordance with the requirements of all the applicable federal, state and local regulations.

1.4 SAMPLING AND ANALYTICAL TESTING

A. All analytical testing and sampling as required under this Section to identify hazardous materials shall be performed by a National Environmental Laboratory Accreditation Program (NELAP) certified laboratory and any sample shipping costs shall be paid for by the Contractor and is incidental to the Contract. Sampling as required or as specified by the Owner or Owner's Consultant shall be performed by the Contractor. It is Contractor's responsibility to submit all samples in a timely fashion to the laboratory. The Contractor shall allow five days turnaround time for results.

B. The sampling and testing requirements for disposal characterization of hazardous materials disposal shall be the Contractor's responsibility.

1.5 REGULATORY REQUIREMENTS

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

PART 2 PRODUCTS (not used)

PART 3 EXECUTION

3.1 GENERAL

A. The Contractor shall be responsible for obtaining all required permits, including confined space entry permits if necessary. The Contractor shall provide approved containers, vehicles, equipment, labor, labels, and manifests and other documents necessary for accomplishment of the work.

B. Safety Guidelines

1. All work associated with hazardous materials shall be performed using an appropriate level of personal protective equipment (PPE) as defined by MIOSHA/OSHA. In the event of unknown hazardous material is identified at the Project Site, the work shall be performed in at least Level B protection as defined by MIOSHA/OHSA.

2. Personnel working at the Project Site shall be trained and made thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work.

C. Control of Work

The Contractor shall perform work in accordance with the requirements of the Drawings and Specifications and shall take direction only from the Owner or Owner's Consultant for this contract. Any other party that proposes to give direction to the Contractor shall be immediately referred to the Owner or Owner's Consultant.

3.2 PROTECTION

A. The Contractor shall conduct atmospheric monitoring in accordance with MIOSHA/OSHA requirements for confined space entry if work will occur in a confined space.

B. The Contractor shall continuously monitor air quality at the Project Site. If airborne dust levels as measured using real-time aerosol particle counter exceed 10 parts per million (ppm) or 20% opacity for longer than 10 minutes, the Contractor shall stop operations until airborne dust levels are below 10 ppm and/or 20% opacity for at least ten (10) minutes.

C. Prior to commencement of demolition and during all demolition activities associated with the 207 Robertson Avenue structure, the Contractor shall adequately wet the structure and demolition debris to prevent visible emissions during demolition and keep associated debris wetted until it is transported for disposal.

3.3 REMOVAL AND DISPOSAL

A. In the event that unidentified hazardous contaminated material is discovered on the Project Site, the Owner's Consultant shall be notified immediately via verbal communication followed by written documentation to the Owner and Owner's Consultant within 24 hours.

B. The Contractor shall provide all labor, materials, equipment, transportation, packaging, sampling and testing, and incidentals required to perform removal and disposal of hazardous contaminated materials. The hazardous contaminated materials shall be handled in accordance with all applicable local, state, and federal regulations.

C. Hazardous Contaminated Materials

1. All hazardous contaminated materials removed from the Project Site shall be recycled or properly disposed in an approved licensed facility. The Contractor shall provide the Owner and Owner's Consultant with manifests, certificates and other such evidence as may be required by Federal, state, and local regulations, to demonstrate that waste materials of all types were properly transported to, received at and disposed of in approved recycling or disposal facilities.

2. In the event that small containers, drums, or storage containers of hazardous contaminated material are discovered on the Project Site, the Contractor shall inspect if the containers and drums of hazardous materials are broken, leaked

or deformed. Leaking or broken containers of hazardous materials shall be overpacked and hazardous contents shall be removed to new drums. Any small containers of waste shall be packaged to meet all applicable MDOT requirements. Based on the analytical results provided by the Owner, the Contractor shall categorize the drums by content and disposal compatibility. The Contractor shall perform compatibility test so compatible waste can be segregated in the interim storage area without risk of fire or explosion.

3. Disposal of hazardous contaminated materials shall be in accordance with all local, state, and federal solid and hazardous waste laws and regulations, including Resource Conservation and Recovery Act (RCRA), and conditions specified herein.

END OF SECTION 02 60 00

SECTION 02 81 00
OFFSITE TRANSPORTATION, RECYCLING, AND DISPOSAL

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Insure that all vehicles entering and leaving the Project Site comply with all safety requirements and licensing requirements of the local, state and federal regulations.

B. Prepare vehicles to prevent spillage or contamination.

C. Inspect vehicles before leaving the Project Site.

D. Transport equipment to and from the Project Site.

E. Transport hazardous or non-hazardous waste materials from the Project Site to an approved facility.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 SUBMITTALS

A. Submit the names of the disposal facilities to the Owner's Consultant for Owner approval at least one week before the disposal operation is conducted.

B. Submit the transportation routes to the selected solid waste disposal facilities to the Owner's Consultant as part of the Work Plan.

C. Submit a Spill Contingency Plan for transportation of solids and liquid wastes. The Plan shall address all the potential hazards, necessary actions to follow in case of spills and emergency phone numbers enroute.

D. Submit copies of all manifests and bill of lading to the Owner's Consultant for the Owner's records.

E. Submit a plan to decontaminate wheels of vehicles leaving Project Site. This procedure shall be detailed identified in the overall decontamination plan.

1.4 PROJECT RECORD DOCUMENTATION

A. Record weight, volume, and character of material disposed.

B. Provide documentation that measuring devices used, are certified by the appropriate state inspection agency.

C. The Contractor shall provide written documentation and records verifying receipt and the quantity received of each load at the disposal facility and verification of proper disposal to the Owner's Consultant and Owner. Copies of the actual receipt must be provided.

D. The Contractor shall prepare and maintain accurate manifests or bill of lading for each batch of the waste materials being transported and disposed. If required, the

Contractor is responsible for obtaining the Owner's signatures on manifests for transportation and disposal purposes.

E. All the materials shall be sampled and analyzed in accordance with the disposal requirements of applicable local, state, and Federal regulations and codes as well as the Project Specifications. The testing parameters shall be determined based on the potential for presence of the respective contaminants.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. The Contractor shall provide equipment, personnel, and facilities necessary to handle and load materials for transport.

PART 3 EXECUTION

3.2 LOADING AND HAULING

A. Inspect haul vehicles for soil adhesion to wheels and under carriage. These soils shall be removed and properly handled by the Contractor before leaving the Project Site. The decontamination procedures shall be carried out at the decontamination zone. The Owner's Consultant will monitor the effectiveness of soil removal from vehicles prior to leaving the Project Site.

B. At a minimum, provide wheel wash down for vehicles. All rinse waters are to be collected for temporary storage prior to disposal. The Contractor will sample collected rinse waters to ensure proper disposal. Contractor shall be responsible for the disposal of decontamination effluents and any associated testing.

C. No transport vehicles shall be allowed to leave the Project Site that are leaking or spilling materials.

D. All transport vehicles shall be tarped or covered when leaving the Project Site and during transit.

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 removed from the Project Site and any associated analytical testing results.

G. The Contractor shall provide the Owner's Consultant with copies of the above records, all permits required, manifests, waste hauling permits, and necessary affidavit regarding the waste materials, including liquid disposal.

H. Prior to transportation, all of the established pre-transport requirements shall be met.

I. The waste shall be transported by a certified waste hauler in approved containers.

3.3 RECYCLING AND DISPOSAL

A. All recycling or disposal shall conform to Federal, State and local government regulations.

B. For hazardous or non-hazardous 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 of 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.

C. Contaminated materials shall be disposed at an approved licensed disposal facility.

D. Arrangements for disposal shall be performed by the Contractor. All costs associated with recycling or disposal are incidental and shall be included in the Base Bid. No additional compensation shall be provided.

3.4 SPILLS

A. The Contractor is responsible for cleaning up all the leaks, spills from containers and other items on site or off site that occur because of the Contractor's negligence. Immediate containment actions shall be taken as necessary to minimize the effect of any spill or leak. The Contractor shall notify the Owner, Owner's Consultant, and appropriate governmental authorities of the incident. Cleanup shall be in accordance with applicable local, state, and federal laws and regulations at no additional cost to the Owner.

END OF SECTION 02 81 00

SECTION 02 82 13

ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asbestos Materials

The project consists of the removal of asbestos-containing materials (ACMs) and subsequent demolition of three structures located in Battle Creek Michigan. The sites, each developed with one vacant structure are located at 207 Robertson Avenue, 145 New Town Avenue, and 4857 West Columbia Avenue.

The scope of service for asbestos removal includes the removal of the following ACMs:

- One fire door located in the 145 New Town Avenue structure.
- One fibrous board located in basement of the 207 Robertson Avenue structure.

The asbestos-containing fire door and fibrous board are considered "friable" ACMs and, according to the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos regulation (40 CFR Part 61, M) must be removed from a structure prior to demolition. According to the Occupational Safety and Health Administration (OSHA) Asbestos Standard for Construction (CFR 29 Part 1926.1101) removal of these materials is considered Class II asbestos work. The asbestos waste materials generated during the removal of these ACMs will require special handling and disposal procedures.

Additionally, although not considered an ACM, according to USEPA or OSHA asbestos regulations, detectable asbestos was present in the white joint compound of the wallboard wall system located throughout the 207 Robertson Avenue residence. The wallboard system is not required to be removed prior to demolition of the 207 Robertson Avenue structure, however, according to the OSHA Asbestos Standard for Construction, work involving these materials is considered "unclassified" asbestos work. Unclassified asbestos work is subject to certain engineering and work practice requirements contained within the OSHA Asbestos Standard for Construction such as: appropriately, wetting the materials, exposure assessment/monitoring of personnel working with these materials, the use of personal protective equipment, prompt removal of waste materials, waste handling requirements, and hazard communication. See SECTION 02 40 00 DEMOLITION for requirements related to demolition activities involving trace asbestos materials.

The Contractor should review the following Asbestos and Lead-Bearing Paint Assessment Reports and post-asbestos abatement letter for additional information regarding asbestos-containing materials and trace asbestos materials in the structures on the Project Sites:

A. *Asbestos and Lead-Bearing Assessment Report-Commercial Building, 145 New Town Avenue, Battle Creek, Michigan*, dated October 18, 2016, and prepared by SME
B. *Post Asbestos Abatement Visual Assessment-145 New Town Avenue, Battle Creek, Michigan, dated November 30, 2016*, and prepared by SME
C. *Asbestos and Lead-Bearing Assessment Report-207 Robertson, Battle Creek, Michigan, dated March 13, 2017*, and prepared by SME
D. *Pre-Demolition Asbestos and Paint Assessment Report-4857 W. Columbia Avenue, Battle Creek, Michigan, dated December 14, 2017*, and prepared by SME

Copies of the above documents are available from the Owner or Owner's Representative upon request.

The Contractor shall complete the work within the specified time limits of the contract. All time limits stated in the project specifications and contract documents are of the essence of the contract. Should the Contractor fail to complete all of the work by the completion dates stipulated, the Owner shall have the right to suspend all future payments and/or invoke liquidated damages as specified in the project specifications and contract documents.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCE STANDARDS

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

A. American Society for Testing and Materials (ASTM)
   1. ASTM E 736 (1986) Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
   2. ASTM 1368 (1990) Visual Inspection of Asbestos Abatement Projects.

B. Code of Federal Regulations (CFR)
   1. CFR 29 Part 1926/1910 Construction Industry Occupational Safety and Health Standards.
   2. CFR 40 Part 61 National Emissions Standards for Hazardous Air Pollutants.
   3. CFR 40 Part 260 General Regulations for Hazardous Waste Management.
   4. CFR 40 Part 263 Standards Applicable to Transporters of Hazardous Waste.
   5. CFR 40 Part 763 Asbestos.
   6. CFR 49 CFR 171 Department of Transportation Regulations to Stipulate Requirements for Containers and Procedure for Shipment of Hazardous Waste.

C. National Fire Protection Association (NFPA)

1. NFPA 10 (1988) Portable Fire Extinguishers.
2. NFPA 70 B (1990) Recommended Practice for Electrical Equipment Maintenance.
3. NFPA 90A (1989) Installation of Air Conditioning and Ventilating Systems.
4. NFPA 101 (1988) Safety to Life from Fire in Buildings and Structures.
5. NFPA 90A (1989) Installation of Air Conditioning and Ventilating Systems.

D. National Institute of Occupational Safety and Health (NIOSH)

1. NIOSH –01 Manual of analytical Methods

E. State of Michigan

1. P.A. Act 451, Michigan Natural Resources and Environmental Protection Act.
2. MIOSHA Act 154 General Industry and Construction (as amended) Safety Standards.)

F. United States Environmental Protection Agency (USEPA)

1. USEPA SW-846, Test Methods for Evaluating Solid Waste.

1.4 MEASUREMENT

The Contractor shall take all field measurements necessary to provide a proposal for the work, and lay out all work in accordance with the specifications considering existing clearances and conditions. The Contractor shall be responsible for any damage and/or cost caused by any inaccuracy on his/her part. The Owner and Owner's Consultant shall not be held responsible for providing accurate measurements of ACM. Any measurements given are to be viewed as estimates only.

A. Asbestos-Containing Materials (ACMs)

The removal and disposal ACMs and ACM debris and contaminated items, from the buildings prior to demolition will be compensated on a lump sum basis as component of the Base Bid for abatement and demolition.

B. Demolition involving trace asbestos wallboard system

Trace concentrations of asbestos (less than 1% asbestos) were detected in the wallboard wall system located in the 207 Robertson Avenue structure. All resulting debris generated by the demolition of the 207 Robertson Avenue structure must be kept wetted to prevent dust emission s until it is transported and appropriately disposed at a landfill licensed to accept the waste. Should the Contractor elect to voluntarily remove the trace asbestos wallboard system prior to demolition, such removal will be at the sole expense of the Contractor.

1.5 PAYMENT

A. Removal of Asbestos Containing Materials

All acceptably completed work as required under this Section for the labor, materials, and incidentals necessary for removal and disposal of ACMs will be paid for as part of the contract lump sum stipulated in the Contractor's bid.

Should any suspect ACM become known during abatement which, in the opinion of the Owner and Owner's Consultant, was concealed during the Contractor's pre-bid examination of the work, the Contractor shall notify the Owner and the Owner's Consultant. The Contractor shall document the discovery of such materials within 24 hours, in writing, including specific locations and quantities of the materials, and submit the documentation to the Owner and Owner's Consultant. Unit Costs for the removal of concealed materials shall be applied with the approval of the Owner and Owner's Consultant. Change Order requests for removal of such materials will be rejected in the absence of proper notification and written documentation. The Owner's Consultant must field verify materials represented as concealed by the Contractor.

1.6 DEFINITIONS

1. Adequately wet: As defined in 40 CFR Part 61, Subpart M, sufficiently mix or penetrate with liquid to prevent the release of particulates from the source material.
2. Aerosol: A system consisting of particles, solid or liquid, suspended in air.
3. Air Cell: Insulation normally used on pipes and ductwork that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.
4. Air Monitoring: The process of measuring the fiber content of a specific volume of air.
5. Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.
6. Asbestos: The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.
7. Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.
8. Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.
9. Asbestos-Containing Waste Material: Any material that is or is suspected of being or any material contaminated with an asbestos-containing material that is to be removed from a work area for disposal.

10. Asbestos debris: Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

11. Asbestos Project Designer: Person trained in accordance with USEPA requirements and accredited by the Michigan Department of Licensing and Regulatory Affairs to prepare asbestos abatement design and specifications. For the purposes of this project, the Asbestos Project Designer is Jason C. Lafayette (Accreditation # A36979).

12. Asbestos Project Design Firm: For the purposes of this project, the Asbestos Project Design Firm is SME, 43980 Plymouth Oaks Blvd., Plymouth, MI 48170.

13. Authorized Visitor: The Owner, Owner's Representative, Owner's Consultant, Asbestos Project Designer, testing lab personnel, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

14. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

15. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

16. Category I Nonfriable Asbestos Containing Material: As defined in 40 CFR Part 61, Subpart M, asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

17. Category II Nonfriable Asbestos Containing Material: As defined in 40 CFR Part 61, Subpart M, asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

18. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

19. Competent Person: As defined in 29 CFR Part 1926, a designated person experienced in administering and supervising asbestos abatement projects. A competent person must be familiar with safe and reasonable work practices, abatement methods, protective measures for personnel, inspection of asbestos abatement work areas, evaluating the adequacy of containment barriers, placement and operation of local exhaust systems, waste containment and disposal procedures, decontamination units, and site health and safety health requirements. The designated "competent person" is responsible for compliance with applicable local State, and Federal requirements governing the work and for enforcing the site-specific Health and Safety Plan.

20. Contractor: The term Contractor shall mean the person, firm or corporation or any combination thereof, and its, their or his/her successors, personal representative, executors, administrators and assigns, and any person, firm

or corporation who or which shall at any time be substituted therefore under this Contract having a contract with the Owner for the Work and shall include in their respective capacities, the President, Manager, or other officer or agent representing or locally managing any corporation contracting the Work. References to specific contractors or subcontractors are made for convenience only and shall in no way relieve the Contractor of the responsibility to complete the Work for the project in entirety.

21. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

22. Disposal Bag: A properly labeled 6-mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site.

23. Employee Exposure: Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

24. Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

25. Owner's Representative: The Owner's Representative will represent the Owner during asbestos abatement and demolition activities. The Owner's Representative will advise and consult with the Owner. The Owner's instructions to the Contractor at times may be forwarded through the Owner's Representative or Owner's Consultant.

26. Owner's Consultant: The Owner's Consultant will review and document the Contractor's work activities and report to the Owner and Owner's Representative during asbestos abatement and demolition activities. The Owner's Consultant will advise and consult with the Owner and Owner's Representative with regard to acceptable asbestos work practices and regulatory compliance during the Contractor's performance of the work. The Owner's instructions to the Contractor at times may be forwarded through the Owner's Representative or Owner's Consultant. The Owner has retained SME as Owner's Consultant for the project.

27. Bridging encapsulant: an encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

28. Penetrating encapsulant: an encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

29. Removal encapsulant: a penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather than for in situ encapsulation.

30. Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.

31. Enclosure: The construction of an airtight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.

32. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

33. Friable Asbestos Material: Material that contains more than 1.0% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

34. Glovebag: A sack (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic) with inward projecting long-sleeved gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

35. HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in diameter.

36. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

37. High-efficiency particulate air filter (HEPA): This term refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.

38. Homogeneous Area: An area of surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture.

39. Negative Pressure Enclosure (NPE) System: A pressure differential and ventilation system that is created with critical barriers and air filtration equipment fitted with HEPA filters. This system must be constructed to allow at least 4 air changes per hour with a minimum of -0.02 column inches of water pressure differential relative to the pressure outside of the enclosure.

40. 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.

41. Negative Pressure Ventilation System: A pressure differential and ventilation system.

42. Owner: The legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which asbestos activities take place. The Owner of the Project Site is: The City of Battle Creek, 10 N. Division, Suite 214, Battle Creek, Michigan 49014

43. Personal Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

44. Pressure Differential and Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

45. Presumed Asbestos-Containing Material (PACM): Thermal system insulation and surfacing material found in buildings constructed no later than 1980.

46. 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.

47. Regulated Area: A demarcated work area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

48. Repair: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

49. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

50. Surfacing Material: Material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes)

51. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

52. Thermal System Insulation (TSI): ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

53. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period. For asbestos exposure samples analyzed via phase contrast miocroscopy, the TWA is an average of airborne concentration of fibers (longer than 5 micrometers) per cubic centimeter of air based on an 8-hour exposure duration, which represents the employee's 8-hour workday as defined in Appendix A of 29 CFR Part 1926.1101.

54. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

55. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos-contaminated waste.

56. Work: The term "work," "project work," or "work of the contract" means work covered under the contract. It includes all labor, materials, tools, equipment, transportation, supervision, temporary construction of all configurations and purpose, taxes, fees, permits, and all other services and facilities of any kind necessary to begin, perform, and complete the construction required by the contract. All costs of the work are considered incidental and shall be included in the bid for the work, provided by the Contractor, and paid by the Contractor unless specifically noted in the project specifications and contract documents.

57. Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers, or debris, and entry by unauthorized personnel. The Work Area is a Regulated Area as defined by 29 CFR 1926.1101.

1.7 SUBMITTALS

Provide submittals as outlined in the project specifications and contract documents, and as specified herein. In addition, prior to beginning work at the project sites, provide the following submittals:

A. Provide a roster of key personnel (project managers, supervisors, etc.) Who will work on the project that lists dates and type of training for each employee arranged in alphabetic order.

B. Submit a copy of a valid State of Michigan asbestos contractor license.

C. Submit a valid certificate of occurrence-based asbestos/hazardous materials liability insurance. Coverage limits must be at least one million dollars of occurrence with a three million dollar aggregate.

D. Submit a detailed work plan of the procedures proposed for use in complying with the requirements of the project specifications. Include in the plan the location and layout of decontamination areas, the sequencing and sectioning of abatement work, methods to be used to assure the safety of visitors to the sites, disposal plan including location of approved disposal site(s), and a detailed description of the methods to be employed to control contamination.

1.8 REGULATORY REQUIREMENTS

A. Permits

Obtain all necessary permits and licenses for asbestos abatement activities. Notify the Michigan Department of Environmental Quality-Air Quality Division (MDEQ-AQD), Michigan Department of Licensing and Regulatory Affairs (MDLRA) Asbestos Program, local agencies, the Owner, the Owner's Representative, and the Owner's Consultant in writing at least 14 calendar days before beginning abatement activities. Conduct all abatement activities in accordance with applicable Occupational Safety and Health Administration (OSHA) standards, including but not limited to 29 CFR 1926.1101, United States Environmental Protection Agency (USEPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61, Subpart M), state, and local regulations governing the work.

B. Licenses

Maintain a current State of Michigan Asbestos Contractor license as required for the removal, transporting, disposal, or other regulated activity relative to the work of this contract. Conduct personal air sampling as defined by the previously noted regulations to monitor employee exposure to airborne asbestos fibers. Adhere to all permit and regulatory requirements for air quality.

C. Health and Safety Compliance

Comply with all applicable laws, ordinances, rules, regulations, and specifications. While conducting all handling, storing, transporting, and disposing activities for asbestos waste materials, comply with the applicable requirements of 29 CFR Part 1910, 29 CFR Part 1926, 40 CFR Part 61, Subpart A, and 40 CFR Part 61, Subpart M, NFPA 10, NFPA 70, NFPA 90A, NFPA 101. In case of a discrepancy between the requirements of this

specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents, the most stringent requirement shall apply.

1. Air Monitoring

   Conduct personal air sampling as defined by the previously noted regulations to monitor employee exposure to airborne asbestos fibers. Adhere to all permit and regulatory requirements for air quality. The Owner's Consultant shall conduct daily perimeter monitoring and clearance air monitoring of regulated asbestos removal Work Areas. The Contractor shall be responsible for provide employee exposure monitoring. Costs associated with employee exposure monitoring shall be considered incidental and incorporated into the bid for work. No additional compensation shall be provided for Contractor employee exposure sample collection or analysis.

2. Respiratory Protection Program

   Establish and implement a respiratory protection program in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. Include medical monitoring, employee training, procedures for respirator use, respirator fit-testing, routine inspection, and storage. Select and use respirators in accordance with manufacturer's recommendations, Mine Safety and Health Administration, and the National Institute for Occupational Safety and Health requirements for use in environments containing airborne asbestos fibers

3. Training

   All employees working directly with asbestos-containing material and wastes must have successfully completed a course of asbestos training as specified by USEPA requirements at 40 CFR Part 763, Subpart E, Appendix C, within 1 year prior to conducting asbestos abatement activities. Each worker must successfully complete the "Worker" course, and on-site supervisors and technical support personnel must successfully complete the "Project Supervisor" course. Individuals working with asbestos on the project sites shall possess current State of Michigan asbestos accreditation from MDLRA.

4. Medical Monitoring

   Conduct medical monitoring requirements as described in 29 CFR Part 1926, Section 1926.1101 and the requirements of the Contractor's Health and Safety Plan.

5. Personal Protective Equipment

   Provide personnel working in asbestos environments with whole body protection against asbestos exposure hazards. Single-use coveralls shall be disposed as asbestos-contaminated waste upon exiting from the asbestos regulated Work Area.

D. Regulatory Notification

Upon award of the contract and upon receipt of the Notice to Proceed, send written notification to the MDLRA and MDEQ-AQD via overnight mail service in conformance with USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).

The NESHAP asbestos regulation 40 CFR Part 61, Subpart M requires that if at least 80 linear meters (260 linear feet) of friable asbestos materials, or at least 15 square meters (160 square feet) of friable asbestos materials, or other facility components are stripped or

removed while renovating a facility, all the requirements of sections 61.147 apply.

The NESHAP regulation also requires submittal of the *Notification of Intent to Renovate/Demolish* forms at least 14 calendar days prior to demolition of a regulated building regardless of whether asbestos material are present within the building.

The project notification must include at minimum the following:

1. Name, address, and telephone number of Owner or Operator.
2. Description of facility being demolished or renovated, including the size, age, number of floors, present and prior use of the facility.
3. Procedures employed to detect presence of RACM, Category I, and Category II nonfriable ACM.
4. Estimate of the approximate amount of friable asbestos material present in the facility in terms of linear feet of pipe and surface area on other facility components.
5. Location and street address (including city, county and state) of the facility being demolished or renovated.
6. Scheduled starting and completion dates of asbestos removal.
7. Scheduled starting and completion dates of demolition or renovation.
8. Description of planned demolition or renovation and method(s) to be used.
9. Description of procedures to be used to comply with requirements, including asbestos removal and waste-handling emission control procedures.
10. Name and location of the waste disposal site where asbestos-containing waste material will be deposited.
11. The name and accreditation number of the Inspector who conducted the asbestos assessment of the structure as well as the name and address of the company employing the Inspector.
12. Certification that at least one person trained as required by paragraph (c)(8) of the Asbestos NESHAP regulations will be on-site and will supervise the asbestos removal and demolition operations described by the notification.

PART 2 PRODUCTS

2.1 MATERIALS

A. Wetting Agent

1. Amended Water

a) Comply with ASTM D 1331.

2. Removal Encapsulant

a) Provide a removal or penetrating encapsulant when conducting asbestos abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM equal to or greater than provided by amended water. The Contractor shall utilize blue tinted Foster Asbestos Removal Encapsulant and Post Removal Residual Encapsulant or approved equivalents.

Strippable Coating

Provide additional incidental items necessary to complete specified activities

Prefabricated Decontamination Unit(s)

Provide additional incidental items necessary to complete specified activities

Chemical encapsulant

Provide additional incidental items necessary to complete specified activities

Chemical encasement materials

Provide additional incidental items necessary to complete specified activities

Safety Data Sheets (for all chemicals proposed)

Provide additional incidental items necessary to complete specified activities

Sheet Plastic

Provide sheet plastic as specified herein and in the largest size necessary to minimize seams. Comply with ASTM D 4397 and NFPA 701. Provide a single polyethylene film, 6.0 mil minimum thickness, in the largest sheet size possible to minimize seams that is clear, frosted or black, as needed.

Other items

Provide additional incidental items necessary to complete specified activities.

2.2 EQUIPMENT

A. High-efficiency particulate air (HEPA) filtered local exhaust equipment

Supply a sufficient number of HEPA-filtered fan units to the sites in accordance with these specifications with two (2) units on-site as backup. Use units that meet the following requirements:

1. Cabinet: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are:
    a) Sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance
    b) Arranged to provide access to and replacement of all air filters from intake end
    c) Mounted on casters or wheels
2. Fans: Rate capacity of fan according to usable air-moving capacity under actual operating conditions.
3. HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.
4. Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.
5. Provide HEPA filters which have been individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 um dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions.
6. Provide filters that are marked with: the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.
7. Prefilters: Provide prefilters, which protect the final filter by removing the larger particles, to prolong the operating life of the HEPA filter. Provide units with prefilters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps. Two stages of prefiltration are required. Provide units with the following prefilters:
8. First-stage prefilter: low-efficiency type (e.g., for particles 100 um and larger)
9. Second-stage (intermediate) filter: medium efficiency (e.g., effective for particles down to 5 um)
10. Instrumentation: Provide units equipped with the following:
11. Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed
12. A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge affixed near the gauge for reference, or the Magnehelic reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (CFM) air delivery at that point
13. Elapsed time meter to show the total accumulated hours of operation

14. Safety and Warning Devices: Provide units with the following safety and warning devices:
15. Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter
16. Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.
17. Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e., filter overloading) (yellow), and too low of a pressure drop (i.e., rupture in HEPA filter or obstructed discharge) (red)
18. Audible alarm if unit shuts down due to operation of safety systems
19. Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriters Laboratories (UL). Each unit is to be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet are to be grounded.
20. Exhaust tubes: Provide exhaust tubes constructed of plastic or foil which are reinforced with wire to prevent kinks or collapse.

Vacuum equipment

Provide vacuums equipped with HEPA filtration for collection of accumulations of asbestos dust/debris in the Work Area. The filter system shall be capable of collecting/retaining asbestos fibers and be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

Pressure differential monitor

Continuously monitor and record the pressure differential between negative pressure enclosure Work Areas and the areas outside with a manometric monitoring device incorporating a continuous recorder (e.g. strip chart or digitally recorded, printable log).

Air monitoring

The Owner has retained SME as the Owner's Consultant to conduct air monitoring included in the specifications and provide appropriate air monitoring equipment to evaluate concentrations of airborne asbestos fibers. The Owner's Consultant shall conduct air monitoring of airborne fiber counts during all phases of asbestos abatement including background sampling, sampling of areas adjacent to the Work Areas, and clearance air sampling within Work Areas following completion of asbestos removal activities. The Contractor is required to perform personal exposure monitoring for his employees as required by the OSHA Asbestos Construction Standard (29 CFR 1926.1101) and is responsible for all costs associated with employee exposure monitoring, which are to be included in the Base Bid for the work.

Respirators

Provide respirators that comply with applicable regulations and standards governing respiratory protection. Except to the extent that more stringent requirements are written directly into the contract documents, 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.

1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR Part 1926.1101 and 29 CFR Part 1910.134.
2. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.
3. NIOSH - National Institute for Occupational Safety and Health
4. MSHA - Mine Safety and Health Administration

Glove Bag

Provide glovebags specifically designed to enclose an object for asbestos removal. The glovebags shall be, at a minimum, constructed of 6 mil transparent polyethylene or polyvinylchloride plastic with inward projecting long-sleeved gloves, an interior tool pouch, and designated locations for sprayer wand and HEPA vacuum wand. The glovebag shall be of sufficient capacity to hold removed materials and permit sealing and comply with the requirements of the OSHA Asbestos Construction Standard (29 CFR Part 1926.1101).

Duct Tape

Provide industrial grade duct tape in 2-inch and 3-inch widths, suitable for bonding sheet plastic and disposal containers specified herein.

Leak-Tight Containers

1. Provide leak-tight disposal containers and bags for asbestos-containing materials and generated wastes as specified herein. All disposal containers shall be either pre-labeled or affixed with OSHA warning label, as specified in 29 CFR Part 1926.1101. Provide 6 mil thick leak-tight polyethylene bags labeled with text as follows:

DANGER

CONTAINS ASBESTOS FIBERS

MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS

DO NOT BREATHE DUST

VOID CREATING DUST

2. Provide marking for each asbestos-waste container as follows:

RQ, Asbestos, NA 2212 (plus the Class 9 label)

3. For asbestos-containing waste material to be transported from the project sites, affix each container and/or wrapped material with a label that complies with the labeling requirements pursuant to 40 CFR Part 61.150, Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations.

Include the name of the waste generator and the locations at which the waste was generated.

2.3 SOURCE QUALITY CONTROL

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances or solvent, and shall meet the following requirements:

A. Requirements and Corresponding Test Standards for All Encapsulants

Requirement	Test Standard
Flame Spread – 25, Smoke Emission – 50	ASTM E 84
Combustion Toxicity	University of Pittsburg Protocol
Zero Mortality	University of Pittsburg Protocol
Life Expectancy – 20 years	ASTM C 732 (Accelerated Aging Test)
Permeability – Minimum 0.4 perms	ASTM E 96

Additional Requirements and Corresponding Test Standards for Bridging Encapsulant

Requirement	Test Standard
Cohesion/Adhesion Test – 50 pounds of force/foot	ASTM E 736
Fire Resistant	ASTM E 119
Impact Resistance – Minimum 43 in/lb	ASTM D 2794 (Gardner Impact Test)
Flexibility – no rupture or cracking	ASTM D 522 (Mandrel Bend Test)

Additional Requirements and Corresponding Test Standards for Penetrating Encapsulant

Requirement	Test Standard
Cohesion/Adhesion Test – 50 pounds of force/foot	ASTM E 736
Fire Resistant	ASTM E 119
Impact Resistance – Minimum 43 in/lb	ASTM D 2794 (Gardner Impact Test)
Flexibility – no rupture or cracking	ASTM D 522 (Mandrel Bend Test)

Additional Requirements and Corresponding Test Standards for Bridging Encapsulant

Requirement	Test Standard
Cohesion/Adhesion Test – 50 pounds of force/foot	ASTM E 736
Fire Resistant –	ASTM E 119
Impact Resistance – Minimum 43 in/lb	ASTM D 2794 (Gardner Impact Test)
Flexibility – no rupture or cracking	ASTM D 522 (Mandrel Bend Test)

Additional Requirement and Corresponding Test Standards for Lock-Down Encapsulant

Requirement	Test Standard
Fire Resistant	ASTM E 119
Bond Strength	ASTM E 736

PART 3 EXECUTION

3.1 GENERAL

Remove and dispose asbestos-containing material at an approved disposal or recycling facility. Obtain all required permits and approval documents. Provide approved containers, vehicles, equipment, labor, signs, placards, labels, manifests, and other documents necessary for accomplishing the work including materials necessary for spill cleanup from removal operations. Coordinate any additional sampling that may be necessary.

The Contractor shall be responsible for providing adequate toilets, electrical power, heat, and water (including hot water) for the abatement/decontamination activities. Costs associated with obtaining/providing temporary utility services to the property or for providing portable sources of electrical power and water sufficient for abatement and decontamination activities shall be included in the Base Bid for the work. Access to the buildings' electrical supply, water supply, and toilet facilities may be made available to the Contractor at the discretion of the Owner.

A. Safety Guidelines

Personnel working inside and in the general vicinity of the cleanup area shall be trained and made thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work. Personnel shall use proper protection and safety equipment during work in and around the asbestos regulated Work Area. Before beginning work with any material for which a Safety Data Sheet has been submitted provide workers with the required protective equipment. Require appropriate protective equipment and decontamination equipment in accordance with applicable regulations, standards, and these specifications.

B. Controls

Areas where asbestos abatement activities are conducted shall be demarcated and managed in accordance with the OSHA Asbestos Construction Standard (29 CFR 1926.1101) requirements for Regulated Areas. Asbestos removal activities shall be conducted in accordance with the Class I and Class II asbestos work requirements of the OSHA Asbestos Construction Standard. Friable asbestos materials shall be removed within a negative pressure enclosure or via glovebag removal methods specified in the standard. Should the Contractor elect to remove nonfriable ACMs by methods that will not result in intact removal, removal shall also be conducted within a negative pressure enclosure and in accordance with OSHA Class II asbestos work requirements.

Asbestos removal activities shall be conducted in compliance with USEPA requirements under the NESHAP regulations (40 CFR 61, Subpart M), utilizing wet methods such that no visible emissions are produced during removal.

C. Additional Bulk Asbestos Sampling

Bulk asbestos sampling and polarized light microscopy analysis (PLM) has been conducted for various materials located throughout the sites. During abatement activities, previously unidentified potential asbestos-containing material may be encountered, requiring bulk sampling and analysis. If the Contractor finds suspect ACM for which no laboratory results exist, the Contractor is responsible to bring the material to the attention

of the Owner's Representative and the Owner's Consultant. The Owner's Consultant shall collect a bulk sample of the material for analysis by Polarized Light Microscopy (PLM) verified by point counting for all samples visually estimated at less than 10 % asbestos. The Contractor shall not collect samples of suspect ACM and submit the samples for laboratory analysis. Additional bulk samples shall be submitted to a laboratory accredited by the National Institute of Standards and Technology (NIST) under the requirements of the National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis.

3.2 ABATEMENT PROCEDURES

Determine and implement the most efficient asbestos abatement method in conformance with this specification. Employ proper handling procedures in accordance with 29 CFR Part 1926.1101 and 40 CFR Part 61, Subpart M, and the requirements specified herein. Abatement techniques and items identified shall be detailed in the Work Plan including but not limited to details of construction materials, equipment, and handling procedures, and necessary safety precautions.

3.2.1 ABATEMENT PROCEDURES-NEGATIVE PRESSURE ENCLOSURE

A. Sequence of Work:

Access to the Work Area shall be through a decontamination system. All other entrances (doors, windows, hallways, etc.) must be blocked or locked. The Contractor must construct a minimum of a three (3) chambered air lock decontamination system at the Work Area entrance which shall consist of an equipment room/dirty room, shower room, clean room.

The Personnel Decontamination Unit shall be the only means of ingress and egress for the Work Area except in the case of fire or a medical emergency that prevents decontamination. All materials shall be moved from the Work Area through the Equipment Decontamination Unit. The only exceptions to this requirement is a waste pass-out air lock that must be sealed except during the removal from the Work Area of sealed asbestos waste in containers, make up air if needed, and emergency exits in case of fire or an accident. Emergency exits will not be locked from the inside and will be sealed with polyethylene sheeting and tape until needed.

Carry out work of this Section sequentially. Complete each activity before proceeding to the next. For the purposes of this Section of the project specifications, a Work Area is the location where asbestos abatement work occurs. A "Work Area" is considered contaminated during the work and must be isolated. A Work Area must be decontaminated at the completion of the asbestos abatement work.

1. Completely isolate the Work Area with polyethylene critical barriers so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the procedures specified below. Perform all such required cleaning or decontamination at no additional cost to Owner.
2. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation.

3. Disable ventilating systems or any other system bringing air into or out of the Work Area. Disable system(s) by disconnecting wires, removing circuit breakers, by lockable switch or other positive means that will prevent accidental premature restarting of equipment.
4. Lockout power to Work Area by switching off all breakers serving power or lighting circuits in Work Area. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of Contractor's Superintendent or Owner.
5. Lockout power to circuits running through Work Area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock the panel and have all keys under control of contractor's superintendent or owner's designated representative. If circuits cannot be shut down for any reason, label at intervals 4'-0" on center with tags reading, "DANGER live electric circuit. Electrocution hazard." Label circuits in hidden locations but which may be affected by the work in a similar manner.

Emergency Exits:

Provide emergency exits and emergency lighting as set forth below:

1. Emergency Exits: At each existing exit door from the Work Area provide the following means for emergency exiting:
   a) Arrange exit door so that it is secure from outside the Work Area but permits exiting from the Work Area.
   b) Arrange Critical and Primary barriers so that they can be easily cut with one pass of a razor knife.
   c) Mark the outline of the door on the Primary and Critical Barriers with luminescent paint at least 1" wide. Hang a razor knife on a string beside the outline.
   d) Paint the words "EMERGENCY EXIT" inside the outline with luminescent paint in letters at least one foot high and 2" thick.

Control Access:

1. Provide the employees who are authorized to enter the construction site with work clothing consisting of disposable full body coveralls, head covers, boots, and other safety gear as needed, including hard hats and eye protection.
2. Allow only authorized personnel to enter the Work Area and only when properly protected. All unauthorized individuals entering the Work Area shall be immediately reported to Owner, Owner's Representative, and Owner's Consultant.
3. Provide warning signs at each outside locked door leading to Work Area reading as follows:

   Print text in English:

Legend	Notation
KEEP OUT	3" Sans Serif Gothic or Block
CONSTRUCTION	1" Sans Serif Gothic or Block

WORK AREA	1" Sans Serif Gothic or Block
PROTECTIVE CLOTHING REQUIRED	14 Point Gothic
BEYOND THIS POINT	

4. Immediately inside door and outside critical barriers post an approximately 20 inch by 14 inch manufactured caution sign displaying the legend and with letter sizes and styles of a visibility as required by 29 CFR 1926.1101.

Alternative Methods of Enclosure:

Alternative methods of containing the Work Area may be submitted to the Owner's Representative for review and approval with the Contractor's proposal.

Respiratory And Worker Protection:

Before proceeding beyond this point in providing Temporary Enclosures:

1. Provide Worker Protection per SECTION 02 82 13.02
2. Provide Respiratory Protection per SECTION 02 82 13.03
3. Provide Personnel Decontamination Unit per paragraph H of this Section.

Critical Barriers:

1. Completely isolate the Work Area from the outside by closing all openings with 2 layers of sheet plastic barriers at least 6-mil in thickness, or by sealing cracks leading out of Work Area with duct tape or approved expanding foam.
2. Individually seal all doorways, windows, and other openings into the Work Area with duct tape alone or with polyethylene sheeting, at least 6-mil in thickness, taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed.
3. Provide Pressure Differential System.

Preparation Of Work Area:

1. Scaffolding: If fixed scaffolding is to be used to provide access, HEPA vacuum and wet clean area prior to scaffolding installation.
2. Sheet Polyethylene: Protect windows in the Work Area with two (2) layers of polyethylene sheeting. Mechanically support and seal with duct tape or spray-glue the Secondary Barrier in the same manner as "Critical Barrier" sheet polyethylene barriers.
3. Repair of Damaged Polyethylene Sheeting: Remove and replace polyethylene sheeting that has been damaged by removal operations or where seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet polyethylene only when area is completely dry.

Personnel Decontamination Unit:

Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Changing Room, Shower Room, Equipment Room and/or "dirty" room. Require all persons without exception to pass through this Decontamination Unit for entry into and exiting from the Work Area for any purpose.

Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit. Provide temporary lighting within Decontamination Units as necessary to reach a lighting level of 100 foot candles. If adequate hot water is not available from the building's hot water system, and authorized for use by the Owner, equip each decontamination unit with an electric water heater to provide hot water to the shower.

1. Changing Room (clean room): Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing.

   a) Construct using polyethylene sheeting, at least 6-mil in thickness, to provide an airtight seal between the Changing Room and the rest of the building.

   b) Locate so that access to Work Area from Changing Room is through Shower Room.

   c) Require workers to remove all street clothes in this room, dress in clean, disposable coveralls, and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter this room. Require workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.

   d) Provide an area to clean, store and recharge respirators. An electrical board with Ground Fault Circuit Interrupters (GFCI) shall be constructed to recharge batteries for PAPRs and recharge personal air monitoring devices.

   e) Maintain floor of changing room dry and clean at all times. Do not allow overflow water from shower to wet floor in changing room.

   f) Damp wipe all surfaces twice after each shift change with a disinfectant solution. If elevated fiber counts are read from air monitoring samples collected from or close to the decontamination unit, the Asbestos Project Designer or Owner's Consultant may request that the Contractor install additional engineering controls to reduce the airborne fiber concentrations. The Contractor shall implement all additional engineering controls requested due to elevated fiber concentrations at no additional cost to the Owner.

   g) Provide posted information for all emergency phone numbers and procedures.

   h) Separate the Drying Room from the rest of the building with airtight walls fabricated of 6-mil polyethylene.

   i) Separate the Drying Room from the Changing Room and Shower Room with airtight walls fabricated of 6-mil polyethylene.

   j) Provide a continuously adequate supply of disposable bath towels.

2. Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Changing Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room.

a) Construct room by providing a shower pan and 2 shower walls in a configuration that will cause water running down walls to drip into pan. Install a freely draining wooden floor in shower pan at elevation of top of pan.

b) Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

c) Separate this room from the Drying Room and Equipment Room with airtight walls fabricated of 6-mil polyethylene.

d) Provide splash-proof entrances to Drying Room and Equipment Room.

e) Provide shower head and controls.

f) Provide temporary extensions of existing hot and cold water and drainage, as necessary for a complete and operable shower.

g) Provide liquid soap, shampoo, and fingernail brush.

h) Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area.

i) Pump waste water to drain or to storage for use in amended water. If pumped to drain, provide 20 micron and 5 micron waste water filters in line to drain or waste water storage. Change filters daily or more often if necessary. Locate filters such that water lost during filter changes is caught by shower pan.

j) Provide hose bib.

3. Equipment Room (contaminated area): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers.

   a) Separate this room from the Work Area by a 6-mil polyethylene flapped doorway.

   b) Separate this room from the rest of the building with airtight double walls fabricated of 6-mil polyethylene.

   c) Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every shift change expected. Roll drop cloth layer of plastic from Equipment Room into Work Area after each shift change. Replace before next shift change. Provide a minimum of two (2) layers of polyethylene at all times. Use only clear polyethylene to cover floors.

4. Work Area: Separate Work Area from the Equipment Room by polyethylene barriers. If the airborne asbestos level in the Work Area is expected to be high, add an intermediate cleaning space between the Equipment Room and the Work Area. Damp wipe clean all surfaces after each shift change. Provide one additional floor layer of 6-mil polyethylene per shift change and remove contaminated layer after each shift.

5. Decontamination Sequence: Require that all workers adhere to the following

sequence when entering or leaving the Work Area:

Entering Work Area:

a) Worker enters Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room.

b) Any additional clothing and equipment left in Equipment Room needed by the worker, such as rubber work boots, are put on in the Equipment Room.

c) Worker proceeds to Work Area.

Exiting Work Area:

a) Before leaving the Work Area, require the worker to remove all gross contamination and debris from overalls and footwear.

b) The worker proceeds to the Equipment Room removes boots and removes all clothing except respiratory protection equipment.

c) Extra work clothing such as boots, hard hats, goggles, and gloves are to be stored in contaminated end of the Equipment Room.

d) Disposable coveralls are placed in a bag for disposal with other asbestos-contaminated material.

e) Require all individuals, including supervisors and superintendents, leaving the Work Area follow the Decontamination procedures found in these specifications.

Equipment Decontamination Unit:

Provide an Equipment Decontamination Unit consisting of a serial arrangement of rooms, Clean Room, Holding Room, and Wash Room, for removal of equipment and material from Work Area. Do not allow personnel to enter or exit Work Area through Equipment Decontamination Unit.

1. Wash Room: provide wash room for cleaning of bagged or containerized asbestos-containing waste materials passed from the Work Area.

   a) Separate this room from the Work Area by a double flapped door of 6-mil polyethylene sheeting.

   b) Provide a drop cloth layer of polyethylene sheeting on floor in the Wash Room for every load-out operation. Roll this drop cloth layer of polyethylene from Wash Room into Work Area after each load-out. Provide a minimum of two (2) layers of polyethylene at all times. Use only clear polyethylene to cover floors.

2. Holding Room: Provide Holding Room as a drop location for bagged asbestos-containing materials passed from the Wash Room.

   a) Separate this room from the adjacent rooms by flap doors fabricated from 6-mil polyethylene sheeting.

3. Load-out Area: The load-out area is the transfer area from the building to a truck or waste bin. It may be the Clean Room of the Equipment Decontamination unit

or a separate room or loading dock area. Provide a layer of 6-mil polyethylene sheeting on the floor in this room between the Holding Room and the truck or waste bin during load-out operations.

4. Decontamination Sequence: Take all equipment or material from the Work Area through the Equipment Decontamination Unit according to the following procedure:
   a) At wash station, thoroughly wet-clean contaminated equipment or sealed polyethylene bags and pass into Wash Room.
   b) Once inside the washroom, wet-clean the bags and/or equipment.
   c) When cleaning is complete pass items into Holding Room. Close all doorways except the doorway between the Holding room and the Load-out area.
   d) Workers from the Load-out area enter Holding Area and remove decontaminated equipment and/or containers for disposal.
5. Require these workers to wear full protective clothing and appropriate respiratory protection.
6. At no time is a worker from an uncontaminated area to enter the Holding Room when a removal worker is inside
7. Visual Barrier: Where the Decontamination area is immediately adjacent to, and within view of, occupied or public areas, the Contractor shall provide a visual barrier of opaque or black polyethylene sheeting at least 6-mil in thickness so that worker privacy is maintained or construct a barrier with wood or metal studs covered with minimum 1/4 inch thick hardboard or 1/2 inch plywood. Where the solid barrier is provided, sheeting need not be opaque.
8. Submit methods of providing Decontamination facilities to the Owner's Representative for review.
9. Electrical: Provide sub-panel at Changing Room to accommodate all removal equipment. Connect all electrical branch circuits in Decontamination unit and particularly any pumps in shower room to a ground fault circuit interrupter (GFCI) device.
10. Heating: Provide water heaters to heat the water for decontamination purposes and wetting of ACM. If conditions require, provide heat to Change Room area.

Cleaning Of Decontamination Units:

1. Clean debris and residue from inside of Decontamination Units on a daily basis. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.
2. If the Changing Room of the Personnel Decontamination Unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former Changing Room as an inner section of the new Equipment Room.

Signs:

Post an approximately 20 inch by 14 inch manufactured caution sign at each entrance to the Work Area displaying the legend with letter sizes and styles of a visibility as required by 29 CFR 1926.1101.

DANGER

ASBESTOS

MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS

AUTHORIZED PERSONNEL ONLY

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

Pressure Differential Isolation

1. Isolate the Work Area from all adjacent areas with a pressure differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the Work Area.
2. Relative Negative Pressure in Work Area: Continuously maintain the Work Area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building envelope. This pressure differential when measured across any physical or critical barrier must equal or exceed a static pressure of - 0.02 column inches of water, relative to the outside pressure.
3. Accomplish the negative pressure differential by exhausting a sufficient number of HEPA filtered fan units from the Work Area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the Work Area. Determine the number of units required for pressure isolation by the following procedure:
   a) Establish required air circulation in the Work Area, worker decontamination unit and equipment decontamination unit.
   b) Establish isolation by increased pressure in adjacent areas or as part of seals where required.
   c) Exhaust a sufficient number of units from the Work Area to develop the required pressure differential.
4. Install the required number of units as determined above plus one additional unit.
5. **Vent the exhaust streams from the HEPA filtered fan units to outside of building** unless authorized in writing by the Owner and Owner's Representative.

Air Circulation in The Work Area:

Air Circulation: air circulation refers to either the introduction of outside air to the Work Area or the circulation and cleaning of air within the Work Area. Air circulation in the Work Area is a minimum requirement intended to help maintain airborne fiber counts at a

level that does not significantly challenge the Work Area isolation measures. The Contractor may also use this air circulation as part of the engineering controls in his worker protection program.

1. Air Circulation Requirements: Provide a fully operational air circulation system supplying a minimum of 4 air changes per hour.

2. Number of Units: Determine the number of units needed to achieve the required air circulation according to the following procedure:

    a) Determine the volume in cubic feet of the Work Area by multiplying floor area by ceiling height.

    b) Determine total air circulation requirement in cubic feet per minute (CFM) for the Work Area by dividing this volume by the air change rate and multiplying by 60.

    c) Air Circulation Required in Cubic Feet of Air per Minute (CFM) =

$$\frac{\text{Volume of Work Area (cu. ft.)} \times \text{Number of air changes per hour}}{\text{60 (minutes per hour)}}$$

    d) Divide the air circulation requirement (CFM) above by capacity of HEPA filtered fan unit(s) used. Capacity of a unit for purposes of this Section is the capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filter warning light to come on) in the machine's labeled operating characteristics.

    e) Number of Units Needed =

$$\frac{\text{Air circulation requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

    f) Add two (2) additional units as a reserve in case of equipment failure or machine shutdown for filter changing.

Exhaust System:

Pressure differential isolation and air circulation in the Work Area are to be accomplished by an exhaust system as described below.

1. Filtration Exhaust: Exhaust all units from the Work Area to meet air circulation requirement of this Section. Vent exhaust to outside of building, unless authorized in writing by the Owner and Owner's Representative.

2. Location of HEPA Filtered Fan Units: Locate fan unit(s) so that makeup air enters Work Area primarily through decontamination facilities and traverses Work Area as much as possible. This may be accomplished by positioning the HEPA filtered fan unit(s) at a maximum distance from the worker access opening or other makeup air sources.

3. Unit Placement: Place end of unit, its intake duct or its exhaust duct, through an opening in the polyethylene barrier or wall covering. Seal polyethylene around the unit or duct with tape.

4. Primary Makeup Air Intake: Arrange the Work Area and decontamination unit(s) so that the majority of makeup air comes through the decontamination unit(s). Use either the personnel decontamination unit or the equipment decontamination unit at any one time and seal the unused unit so the makeup air passes through unit in use.

5. Supplemental Makeup Air Inlets: Provide where required for proper air flow through the Work Area in location approved by the Owner and Owner's Representative by making openings in the plastic sheeting that allow air from outside the building into the Work Area. Locate auxiliary makeup air inlets as far as possible from the fan unit(s) (e.g., on an opposite wall), off the floor (preferably near the ceiling), and away from barriers that separate the Work Area from occupied clean areas. Cover with flaps to re-seal automatically if the pressure differential system should shut down for any reason. Spray flap and around opening with spray adhesive so that if flap closes meeting surfaces are both covered with adhesive. Use adhesive that forms contact bond when dry.

Air Circulation in Decontamination Units:

1. Pressure Differential Isolation: Continuously maintain the pressure differential required for the Work Area in the:

   a) Personnel Decontamination Unit: across the Shower Room with the Equipment Room at a lower pressure than the Clean room.

   b) Equipment Decontamination Unit: Across the Holding Room with the Wash Room at a lower pressure than the Clean Room.

2. Air Circulation: Continuously maintain air circulation in Decontamination Units at same level as required for Work Area.

3. Air Movement: Arrange air circulation through the Personnel Decontamination Unit so that it produces a movement of air from the Clean Room through the Shower Room into the Equipment Room. Maintain continuous minimum velocities of Sixty (60) feet per minute in the breathing zone area of the shower and thirty (30) feet per minute in all other locations of the shower.

Use of the Pressure Differential and Air Circulation System:

1. Electrical service: Each filtration unit shall be serviced by a dedicated minimum 115V-20A circuit with ground fault circuit interrupter (GFCI) supplied from temporary power supply installed under requirements of applicable NEMA, NECA, and UL standards and governing regulations for materials and layout of temporary electric service.

2. Testing the System: Test pressure differential system before any asbestos-containing material is wetted or removed. After the Work Area has been prepared, the decontamination facility set up, and the fan unit(s) installed, start the unit(s) (one at a time). Demonstrate operation and testing of pressure differential system to Owner's Consultant.

3. System Operation: The Contractor shall demonstrate operation of the pressure differential system to the satisfaction of the Owner's Representative and the Owner's Consultant. Such demonstration may include, but not be limited to:

4. Use of a smoke tube test to demonstrate air movement from Clean Room through Shower Room to Equipment Room.
5. Use of a smoke tube test to demonstrate a definite motion of air across all areas in which work is to be performed.
6. Use a differential pressure meter or manometer to demonstrate the required pressure differential at every barrier separating the Work Area from the balance of the building, equipment, ductwork or outside.
7. Pressure Differential System Modification: The Contractor shall modify the system as necessary to successfully demonstrate the conditions listed above.
8. Pressure Differential Monitoring: The Contractor shall continuously monitor and record the pressure differential between the Work Area and the area outside the Work Area with a manometric monitoring device incorporating a continuous recorder (e.g. strip chart) or an electronic data logging system capable of producing a printed log with a log printed at the end of each work shift.
    a) Monitor pressure differential at Personnel and Equipment Decontamination Units with a differential pressure meter equipped with a continuous recorder. Meter shall be equipped with an audible alarm that will sound if pressure differential rises above minus 0.01 inches of water column.
    b) At the conclusion of the project: Submit printout from pressure differential monitoring equipment demonstrating continuous, adequate negative pressure differential for all NPE work areas. Mark printout with date and start of time for each day. Use printout paper that indicates elapsed time in intervals no greater than one-half hours. Indicate on each day's record times of starting and stopping abatement work, type of work in progress, breaks for lunch or other purposes, periods of stop work, and filter changes. Cut printout into segments by day, attach to 8 1/2" by 11" paper. Label with project name, contractors name and date.
9. System During Abatement Activities: The Contractor shall operate the negative pressure differential system as outlined below:
    a) Start fan units before beginning work (before any asbestos-containing material is disturbed). After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete. Do not turn off units at the end of the work shift or when abatement operations temporarily stop.
    b) Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the Owner, Owner's Representative, or Asbestos Project Designer in writing. Supply sufficient pre-filters to allow frequent changes
    c) Start abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again.

d) At completion of abatement work, allow fan units to run to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the Work Area with clean makeup air. The units may be required to run for a longer time after decontamination, if dry or only partially wetted asbestos material was encountered during any abatement work.

10. Dismantling the System: When a final inspection and the results of clearance air tests indicate that the Work Area has been decontaminated, the filtration fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6-mil polyethylene to prevent environmental contamination from the filters.

Secondary Barrier:

Secondary Barrier: Over the Primary Barrier, install as a drop cloth a clear 6-mil sheet polyethylene in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet polyethylene. Where the work is within 10'-0" of a wall extend the Secondary Barrier up wall to ceiling. Support sheet polyethylene on wall with duct tape, seal the top of the polyethylene Secondary Barrier to the Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet polyethylene to prevent it falling during removal operations.

Install Secondary Barrier at the beginning of each work shift. Install only sufficient polyethylene for work of that shift.

Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold polyethylene toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.

Worker Protection:

Before beginning work with any material for which a Safety Data Sheet has been submitted provide workers with the required protective equipment. Require appropriate protective equipment and decontamination equipment in accordance with these project specifications.

Wet Removal Methods:

1. Thoroughly wet suspect ACM debris prior to stripping and/or tooling to reduce fiber dispersal into the air.
2. Remove saturated Asbestos-Containing Material in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over, and seal with minimum three wraps of duct tape.
3. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.

Cleaning the Work Area:

1. First Cleaning: Carry out a first cleaning of all surfaces of the work area including Critical Barrier sheeting, tools, scaffolding and/or staging by use of damp cleaning and mopping, and/or a High Efficiency Particulate Absolute (HEPA) filtered vacuum. (Note: A HEPA vacuum will fail if used with wet material.) Do not dry dust or dry sweep. Continue cleaning until there is no visible dust, debris or residue on plastic sheeting or other surfaces. Clean the Work Area utilizing the following procedures:

   a) Immerse paper towel or rag in container of water with surfactant, or diluted removal encapsulant.

   b) Wring out towel or rag, fold into quarters, wipe surface once and refold to a fresh face of cloth.

   c) Proceed in this manner until all available faces of paper towel or rag have been used then dispose of paper towel or rag as asbestos-contaminated material.

   d) Do not reuse towel or rag.

2. Final Cleaning: Carry out a final cleaning of all surfaces in the Work Area in the same manner as the first cleaning.

3. Perform a Complete Visual Inspection of the entire Work Area including decontamination unit, sole barrier sheeting, seals over ventilation openings, doorways and windows, etc.) for debris from any sources, residue on surfaces, etc. The visual inspection of each Work Area shall be conducted in general accordance with ASTM Designation E 1368, Standard Practice For Visual Inspection of Asbestos Abatement Projects. If any such debris or residue is found repeat the first cleaning and continue the decontamination procedure from that point.

4. When the Work Area is visually clean and has been inspected by the Contractor's site foreman, request a visual review by the Owner's Consultant. The visual review of each Work Area shall be conducted in general accordance with ASTM Designation *E 1368, Standard Practice For Visual Inspection of Asbestos Abatement Projects*. The Owner's Consultant will review all areas the Contractor believes are complete and indicate what re-cleaning, if any, is required.

5. When the Work Area has passed visual inspection by the Contractor and has been reviewed by the Owner's Consultant, the Certification at the end of this section shall be endorsed by the Contractor's superintendent.

6. After passing the visual inspection by Contractor and obtaining a concurring opinion from the Owner's Consultant, the Contractor shall apply an encapsulant to all surfaces in the Work Area and decontamination chamber. The encapsulant shall be tinted blue.

7. Clearance air samples will be collected by the Owner's Consultant in each Work Area at the completion of final cleaning.

Certificate of Visual Inspection:

1. Following this section is a "Certificate of Visual Inspection". This Certification is to be completed by the Contractor for each NPE or asbestos abatement Work Area.
2. Submit completed Certificate to the Owner's Representative and Owner's Consultant to include in the final project records.
3. Final payment will not be made until these Certifications are executed.

Disposal of ACM Waste

This part of this section describes the disposal of asbestos-containing materials (ACMs). Disposal includes packaging of asbestos-containing waste materials.

1. Before Start of Work: Submit the following to the Owner, Owner's Representative, and Owner's Consultant for review. Do not start work until these submittals are returned with Owner's action stamp indicating that the submittal is returned for unrestricted use.
   a) Copy of state or local license for waste transporter.
   b) Name and address of landfill where asbestos-containing waste materials are to be buried. Include contact person and telephone number.
   c) Within 48 hours, submit copies of all manifests and disposal site receipts to the Owner, Owner's Representative, and Owner's Consultant.
2. The Contractor shall be responsible for containerizing ACMs per the current, applicable federal and state regulations. Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following:

   Two 6-mil disposal bags or.

   Two 6-mil disposal bags and a fiberboard drum.
3. Provide 6 mil thick leak-tight polyethylene bags labeled with text as follows:

DANGER

CONTAINS ASBESTOS FIBERS

MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS

DO NOT BREATHE DUST

AVOID CREATING DUST

Provide marking for each asbestos-waste container as follows:

RQ, Asbestos, NA 2212 (plus the class 9 label)

4. Additional Labeling Requirements: The Contractor shall observe the labeling requirements pursuant to 40 CFR part 61.150 Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations. The following requirements are contained in Paragraph (a) (1) of the standard:

> (iii)After wetting, seal all asbestos-containing waste material in leak-tight containers while wet: or, for materials that will not fit into containers without additional breaking, put materials into leak-tight wrapping; and

(iv) Label the containers or wrapped materials specified in this section using warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1926.1101 (k)(7). The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible.

(v) For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and the locations at which the waste was generated.

The Contractor shall provide appropriate covered, leak-proof waste bins that can be locked for holding and disposal of asbestos-containing materials and shall arrange for removal of asbestos-containing materials from the job site. The Contractor shall line the waste bin with 6-mil thick polyethylene sheeting prior to depositing bagged asbestos waste. The waste bins shall be staged at a location authorized by the Owner, Owner's Representative, and/or Owner's Consultant. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or waste bin. It is permissible to stage a waste container, until the completion of the asbestos removal activities, in parking lot adjacent the building located at 634 Webster Street. The Contractor shall be permitted to transport asbestos waste materials from the project sites on a daily basis as an alternative to staging an asbestos waste container.

5. For asbestos-containing waste material to be transported from the project sites, affix each container and/or wrapped material with a label that complies with the labeling requirements pursuant to 40 CFR Part 61.150 Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations. Include the name of the waste generator and the locations at which the waste was generated.

6. The Contractor shall be responsible for properly loading the containers in fully enclosed waste bins, trucks, or other appropriate vehicles for transport. Do not transport bagged materials for disposal in open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

7. Workers handling asbestos waste outside the containment area shall wear protective clothing and at minimum negative pressure half-face respiratory protection unless a Negative Exposure Assessment for waste handling activities has been produced in accordance with the requirements of 29 CFR 1926.1101. Workers performing load out procedures shall receive personal air monitoring.

8. The Contractor shall be responsible for properly securing and off-loading at the previously approved disposal site. Advise the landfill operator or processor, in advance of transport, of the quantity of material to be delivered. At the disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for re-bagging. Clean entire truck and contents using procedures set forth in this section.

9. Retain receipts from landfill for materials disposed. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the Owner, Owner's Representative, and Owner's Consultant. **Only those receipts fully completed and endorsed will be accepted by the Owner, or Owner's Representative.**

10. **Within thirty five (35) days of each waste shipment from the project sites, submit a completed NESHAP Waste Shipment Record (WSR) for each shipment of waste transportation from the project sites.**

Stop Work:

If the Critical barrier falls or is breached in any manner stop work immediately. Do not start work until authorized verbally by the Owner, Owner's Representative, or Owner's Consultant.

END OF SECTION 02 82 13

ATTACHMENT TO SECTION 02 82 13

CERTIFICATE OF VISUAL INSPECTION

In accordance with Section 02 82 13, "Asbestos Abatement," the Contractor hereby certifies that he/she has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit(s), sheet plastic, etc.) and has found no dust, debris or residue. The Contractor further certifies that all surfaces have received an application of encapsulant to "lock-down" any remaining microscopic fibers.

Work Area: _____

As Authorized Representative of the Contractor,

Inspected By: (Signature) _____

Date_____

(Print Name) _____

(Print Title) _____

SECTION 02 82 13.01
ASBESTOS ABATEMENT AIR MONITORING

PART 1 GENERAL

1.1 SCOPE OF WORK

This section describes air monitoring carried out by the Owner's Consultant to verify that the outside environment remains uncontaminated. This section sets forth airborne fiber levels both inside and outside the Work Area as action levels, and describes the action required by the Contractor if an action level is met or exceeded.

This section also sets forth required post-abatement airborne asbestos concentrations in the Work Area and describes testing procedures the Owner's Consultant may use to measure these levels. A Visual Inspection of each Work Area is required as a prerequisite of clearance air testing, as set forth in SECTION 02 82 13, ASBESTOS ABATEMENT.

Contractor's Personnel Air Monitoring: The Contractor is required to perform personal exposure monitoring for his employees as required by the OSHA Asbestos Construction Standard (29 CFR 1926.1101). Specific personal exposure monitoring requirements are listed below, in Item 6 of this section. The Owner's Consultant is not authorized to conduct personal exposure monitoring of the Contractor's personnel.

1.2 RELATED DOCUMENTS:

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 AIR MONITORING:

A. Background and Perimeter Airborne Fiber Monitoring: The Owner's Consultant shall perform monitoring of airborne fiber counts during all phases of asbestos abatement including background sampling and sampling of areas adjacent to the Work Area(s). The purpose of this air monitoring is to detect faults in the Work Area isolation such as:

1. Failure of filtration or rupture in the differential pressure system
2. Contamination of air outside of the Work Area or Negative Pressure Enclosure (NPE) by elevated airborne fiber levels.
3. Contamination of air outside the building by airborne asbestos fibers.

Should any of the above occur, the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Asbestos abatement activities shall not recommence until authorized by the Owner's Consultant.

B. Work Area Airborne Fiber Count: The Owner's Consultant will have an Industrial Hygiene technician on-site who may monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations that may challenge the ability of the Work Area isolation procedures to protect the area outside of the building from contamination by airborne fibers.

1.4 STOP WORK LEVELS:

Inside Work Area: Maintain an average airborne count in the Work Area of less than 0.5 fibers per cubic centimeter (f/cc). If the fiber counts rise above this figure for any

sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds 0.5 f/cc, stop all work, leave Negative Pressure Differential System in operation and notify the Owner's Consultant.

A. Outside Work Area: If any air sample collected outside of the Work Area exceeds 0.01 f/cc, immediately and automatically stop all work except corrective action.

   1. The Contractor shall decontaminate the area by utilizing air filtration and damp wipe down measures.

      a. If this air sample was collected inside the building and outside of critical barriers around the Work Area and it exceeds the base line, immediately erect new critical barriers as outlined in Section 02 82 13 to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (e.g., wall, ceiling, floor).

      b. Decontaminate the affected area as outlined in Section 02 82 13, ASBESTOS ABATEMENT.

   2. If the elevated reading was the result of other causes initiate corrective action as determined by the Owner's Consultant.

B. Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if elevated airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by elevated airborne fiber counts beyond the Contractor's control.

C. Fibers Counted: The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts.

   1. Large Fibers: "Airborne Fibers" referred to above include all fibers regardless of composition as counted by phase contrast microscopy (PCM), unless additional analysis by transmission or scanning electron microscopy demonstrates to the satisfaction of the Owner and Owner's Consultant that non-asbestos fibers are being counted. "Airborne Fibers" counted in samples analyzed by scanning or transmission electron microscopy shall be asbestos fibers, greater than 5 microns in length and greater that 0.25 microns in diameter.

   2. Small Structures: "Airborne Fibers" referred to above include asbestos structures (fibers, bundles, clusters or matrices) of any diameter and any length greater than 0.5 microns.

   3. If the Contractor desires additional analysis to determine the type of fibers detected in an elevated concentration which results in a stop work order, the Contractor will be responsible for the cost of the scanning or transmission electron microscopy analysis and any associated shipping fees.

1.5 ANALYTICAL METHODS:

The following methods will be used by the Owner's Consultant in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.

A. Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 method. This analysis will be carried out at the Project Site until such time as each Work Area is visually inspected and ready for "final clearance" air monitoring.

B. Transmission Electron Microscopy (TEM): If a dispute arises pertaining to a high fiber count or as directed by the Owner or the Owner's Consultant, TEM analyses using the Level 1 analysis per USEPA Provisional Method and Update (USEPA 1977, Yamate 1984), with either polycarbonate or mixed cellulose ester filters will be utilized.

1.6 SCHEDULE OF AIR SAMPLES:

The number, type and volume of air samples collected by the Owner's Consultant will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical method used.

A. Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:

1. PCM: 0.8 micrometer mixed cellulose ester, or if required,
2. TEM: 0.45 micrometer mixed cellulose ester or 0.40 micrometer polycarbonate, with 5.0 micron mixed cellulose ester backing filter. Samples collected for TEM analysis may be held without analysis.

B. Types of air monitoring samples:

1. Baseline Air Monitoring: Collected inside and outside of the Work Area(s) prior to abatement to determine ambient fiber levels.
2. Background: Collected on a daily basis in areas away from the Work Area which should not be affected by abatement action..
3. Contiguous: Collected on a daily basis in various/numerous locations outside the Work Area to detect elevated fiber levels during abatement.
4. Work Area: Collected on a daily basis in various locations inside the Work Area to ensure compliance with proper procedures and specifications.
5. Field Blanks: Field blanks are collected to ensure that contamination of cassettes has not occurred. Each set of samples collected will include ten percent (10%) blanks or a minimum of two blanks.

C. Samples will be collected on 25 mm. cassettes with 0.8 micrometer mixed cellulose ester the filter media according to the following schedule:

Sample Location	Number of Samples	Analysis Method	Detection Limit (f/cc)	Minimum volume (liters)	Sampling Rate (liters per minute)
Work Area	1 or as required	PCM	0.01	500	1.0-14.0
Outside work Area	3 or as required	PCM	0.01	1,200	1.0-14.0
Clean Room	1 or as required	PCM	0.01	1,200	1.0-14.0
Equipment or Waste load out	1 or as required	PCM	0.01	1,200	1.0-14.0
Air Filtration Device Exhaust	1 or as required	PCM	0.01	1,200	1.0-14.0

Additional samples may be collected at the discretion of the Owner or Owner's Consultant. If the airborne fiber concentrations exceed allowable limits, additional samples will be collected as necessary to monitor fiber levels.

1.7 LABORATORY TESTING:

All daily air monitoring samples collected by the Owner's Consultant will be analyzed by Phase Contrast Microscopy.

A. A Phase-Contrast microscope and Industrial Hygiene technician will be set up at the Project Site for analysis of air samples collected by the Owner's Consultant for the Owner during each shift of work.

B. The Contractor will have access to all air monitoring tests and results.

C. Reports of all air monitoring tests will be available at the Project Site.

1.8 CONTRACTOR PERSONNEL EXPOSURE MONITORING

A. The Contractor shall perform worker exposure monitoring required to meet OSHA Requirements 29 CFR 1926.1101 for the maintenance of Time Weighted Average (TWA) fiber concentrations for the types of respiratory protection provided, including, at the beginning of each work period, collection and analysis of Excursion Limit (1.0 f/cc over a 30 minute period) air sample.

B. At a minimum, 25% of the Contractor's work force, stratified over each job function in the Work Area, shall be monitored for exposure to asbestos fibers. The samples shall be collected at flow rates of ranging from 0.5 to 2.5 liters per minute. The samples shall be collected in a manner consistent with accepted industrial hygiene practices. The sampling units utilized for collection of the personal exposure samples shall be calibrated with a primary or secondary calibration device at the beginning and end of each sample period. The mean flow rate shall be used to compute the sample volume.

C. The Contractor shall provide for analysis of the samples in accordance with NIOSH 7400 Method within 24 hours of collection and shall submit a copy of a written report of all personal air monitoring. In addition, at the beginning of each work shift, the Contractor shall post the results of the exposure sampling conducted during the previous shift.

D. The Contractor shall be responsible for all costs associated with the personnel exposure monitoring.

E. Results of the personal exposure samples shall be posted at the Project Site and made available to the Owner and Owner's Consultant as specified herein. The Contractor shall maintain a fiber concentration inside enclosed containment regulated Work Area equal to or less than 0.1 f/cc expressed as an 8 hour, TWA during asbestos abatement. If fiber concentration rises above 0.1 f/cc, the Contractor's superintendent and the Owner's Consultant shall examine work procedures to determine the cause.

F. Workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as average over a sampling period of 30 minutes. If either an environmental concentration of 0.1 f/cc expressed as an 8-hour TWA or a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside the enclosed Work Area, stop work immediately, notify the Owner and Owner's Consultant, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the Work Area.

1.9 ASBESTOS WORK AREA CLEARANCE

A. Contractor Release Criterion: A visual review of each regulated Work Area shall be conducted in general accordance with ASTM Designation E 1368, Standard Practice For Visual Inspection of Asbestos Abatement Projects. The Asbestos Abatement Work Area is cleared when the Work Area is visually clean and airborne asbestos structure concentrations have been reduced to the levels specified below.

B. Aggressive Sampling: All Negative Pressure Enclosure Work Area clearance air samples will be collected using aggressive sampling techniques as follows:

1. Before sampling pumps are started the exhaust from forced-air equipment (leaf blower with an approximately 1 horsepower electric motor) will be swept against all walls, ceilings, floors, ledges and other surfaces in the room. This procedure will be continued for 5 minutes per 10,000 cubic feet of room volume.

2. One 20-inch diameter fan per 10,000 cubic feet of room volume will be mounted in a central location and directed toward ceiling and operated at low speed for the entire period of sample collection.

3. Air samples will be collected in areas subject to normal air circulation away from room corners, obstructed locations, and sites near windows, doors, or vents.

4. After the air sampling pumps have been shut off, the fans will be shut off.

C. Clearance Air Sampling: To determine if the elevated airborne asbestos structure concentration encountered during abatement operations has been reduced to the specified level, the Owner's Consultant will collect air samples and analyze them according to the following procedures.

1. Schedule of Air Samples: The number and volume of air samples collected and analytical methods used by the Owner's Consultant will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical instruments used and conditions at the Project Site.

2. In each homogeneous Work Area, after completion of all cleaning work, air clearance samples will be collected and analyzed by PCM or TEM. The sample numbers indicated below are to be considered minimum. The Owner and

Owner's Consultant will determine air sampling changes for PCM or TEM analysis.

D. Phase Contrast Microscopy (PCM): In each homogeneous Work Area after completion of all cleaning work, for PCM clearance sampling, samples may be collected according to the following schedule:

Sample Location	Number of Samples	Analysis Method	Detection Limit (f/cc)	Minimum volume (liters)	Sampling Rate (liters per minute)
Each Work Area or	3 or as required	PCM	0.01	1,200	1.0-10.0
Each Room Within Work Area	1 or as required	PCM	0.01	1,200	1.0-10.0
Outside Work Area	1 or as required	PCM	0.01	1,200	1.0-10.0
Field Blank	1	PCM	0.01	0	unsealed
Laboratory Blank	1	PCM	0.01	0	sealed

1. Analysis will be performed using the NIOSH 7400 method.
2. Release Criterion: Decontamination of the Project Site is complete if all Work Area samples exhibit fiber concentrations of less than or equal to 0.01 fibers per cubic centimeter of air collected.
3. If these conditions are not met then the decontamination is incomplete and the cleaning procedures of Section 02 82 13 shall be repeated. Reclean, resample, and reanalyze until final clean-up requirements are met. Costs associate with additional samples, cleaning, and inspections will be paid by the Contractor.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION (not used)

END OF SECTION 02 82 13.01

SECTION 02 82 13.02
WORKER PROTECTION – ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SCOPE OF WORK

This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection. Worker protection must be coordinated with the daily site safety audit.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 WORKER TRAINING

A. State and Local License: All workers are to be trained and accredited as required by Michigan Public Act 440.

B. In accordance with the OSHA Asbestos Construction Standard, 29 CFR Part 1926.1101, train all workers regarding the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures.

1.4 MEDICAL EXAMINATIONS

Provide medical examinations for all workers (prior to the start of work) who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8-hour Time Weighted Average. In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the Work Area for any reason. The examination shall, at a minimum, meet OSHA requirements as set forth in 29 CFR Part 1926.1101. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in a worker.

PART 2 PRODUCTS

2.1 PROTECTIVE CLOTHING

A. Coveralls: Provide cloth full-body disposable coveralls and hats, require that they be worn by all workers in the Work Area. Require that workers change out of coverall in the Equipment Room of the Personnel Decontamination Unit. Dispose of coverall as asbestos waste at completion of all work.

B. Boots: Provide work boots with non-skid soles, and where required by OSHA, foot protection for all workers. Provide boots at no cost to workers. Do not allow boots to be removed from the Work Area unless decontaminated to the satisfaction of the Owner's Consultant.

C. Hard Hats: Provide head protection (hard hats) as required by OSHA for all workers, and provide 2 spares for use Owner and Owner's Representative. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean,

decontaminate and bag hats before removing them from Work Area at the end of the work.

D. Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work Area. Do not remove gloves from Work Area and dispose of as asbestos-contaminated waste at the end of the work.

2.2 ADDITIONAL PROTECTIVE EQUIPMENT:

A. Disposable coveralls, head covers, footwear covers, and, if necessary, respirators shall be provided by the Contractor for the Owner, Owner's Representative, Owner's Consultant, and other authorized representatives who may inspect the Project Site. Provide two (2) powered air-purifying respirators (PAPRs), six (6) complete coveralls, and 2 PAPR respirator filter changes per day per person visiting the Project Site.

B. Provide worker protection as required by the most stringent OSHA 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.

PART 3 EXECUTION

3.1 WORK AREA ENTRY

The Contractor shall ensure all personnel, including supervisors, follow the procedure outlined below for entry into a regulated asbestos removal area:

A. 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.

B. Proceed through shower room to equipment room and put on work boots.

3.2 DECONTAMINATION PROCEDURES

The Contractor shall require all personnel, including supervisors, to adhere to the following personal decontamination procedures whenever they leave the Work Area:

Procedures for Powered Air-Purifying Respirators (PAPR):

A. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

B. 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:

1. Thoroughly wet body including hair and face. Hold PAPR blower unit above head to keep filter canisters dry.
2. 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.
3. 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 breathe.
4. Carefully wash face piece of respirator inside and out.

5. Shut down PAPR in the following sequence:
    a. Cap inlets to filter cartridges, 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).
    b. Thoroughly wash blower unit and hoses.
    c. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and the destroy battery.
6. Shower completely with soap and water, including hair.
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.

Procedures for Air Purifying-Negative Pressure Respirators (half or full face cartridge type respirator):

A. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

B. Still wearing respirators, proceed to showers. Showering is mandatory except for areas where asbestos-containing materials are removed substantially intact. 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:
    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 breathe.
    4. Dispose of wet filters from air purifying respirator in ACM waste bag.
    5. Carefully wash face piece of respirator, inside and out.
    6. Shower completely with soap and water, including hair.
    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.

3.3 WORK AREA RESTRICTIONS

A. The Contractor shall ensure all personnel who enter asbestos removal or lead/cadmium paint Work Areas do NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. Personnel with repeated infractions will be removed from the project Work Area and prohibited from returning to the Project Site.

B. The Contractor shall instruct all personnel who enter asbestos Work Areas to completely utilize the disposable coveralls, including wearing the hood.

C. In all Work Areas where disposable coveralls are employed for personal protection, the Contractor shall prohibit personnel from altering the disposable coveralls (cutting off sleeves, hoods, etc.) and shall ensure any person whose disposable coveralls become ripped or torn while in the Work Area proceeds immediately to the Decontamination Unit or area to don a new pair of coveralls.

D. In all Work Areas where respirators are employed for personal protection, the Contractor shall prohibit personnel who enter the Work Area from removing respiratory protection while inside the Work Area. Personnel with repeated infractions will be removed from the Work Area and prohibited from returning to the Project Site.

E. The Contractor shall prohibit personnel who enter the Work Area in leather work boots from removing the leather work boots from the Work Area. Upon completion of the project, the leather work boots shall be placed in an appropriately labeled waste bag and disposed as ACM waste, or in the case of lead/cadmium paint work areas as lead waste, respectively.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION (not used)

END OF SECTION 02 82 13.02

ATTACHMENT TO SECTION 02 82 13.02 - WORKER PROTECTION
CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

Project Name _____

Project Address _____

Contractor's Name _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You are supplied with the proper respirator and are trained in its use. You are also trained in safe work practices and in the use of the equipment found on the job. You have received a medical examination. These things are to have been performed and supplied at no cost to you. By signing this certification you are assuring the Owner that your employer has met these obligations to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped, at no cost, with the respirator to be used on the above project.

TRAINING COURSE: I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

Physical characteristics of asbestos and health hazards associated with asbestos
Respiratory protection and use of other protective equipment
Negative air systems
Work practices including hands on or on-job training
Personal decontamination procedures
Air monitoring, personal and area
Physical Characteristics of any other hazardous materials
Health hazards associated with any other hazardous materials
Protective equipment for any other hazardous materials

MEDICAL EXAMINATION: I have had a medical examination within the past twelve months that was paid for by my employer. This examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature _____

Printed Name _____

Social Security Number _____

Witness _____

Date _____

SECTION 02 82 13.03
RESPIRATORY PROTECTION – ASBESTOS ABATEMENT

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Instruct and train each worker involved in asbestos abatement, maintenance and repair of friable asbestos-containing materials, or demolition of surfaces coated with lead bearing paints 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 airborne lead/cadmium in excess of the action level, until the Work Area is completely decontaminated.

B. Use respiratory protection appropriate for the fiber, lead, or cadmium concentration encountered in the work place or as required for other toxic or oxygen-deficient situations that may be encountered.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCE STANDARDS

Except to the extent that more stringent requirements are written directly into the Contract Documents, 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.

A. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR Part 1926.1101 and 29 CFR Part 1910.134.

B. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.

C. NIOSH - National Institute for Occupational Safety and Health

D. MSHA - Mine Safety and Health Administration

1.4. SUBMITTALS

Before the start of work, submit information and begin no work until these submittals are returned with Owner's action stamp indicating that the submittal is returned for unrestricted use or final, but restricted use. Submit information on the following to the Owner for review:

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 entire assembly.

B. System Diagram: When a Type "C" supplied air respiratory system is required by the work, submit a 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), and 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 the OSHA Respiratory Protection Standard (29 CFR 1910.134).

E. Historic Air Monitoring Data/Negative Exposure Assessment: Submit airborne asbestos fiber concentration data and/or lead or cadmium exposure monitoring data from an independent air monitoring firm to substantiate selection of respiratory protection proposed. Data submitted shall include at least the following and have originated no more than six months prior to the start of work involving use of respiratory protection:

1. Date of measurements
2. Operation monitored
3. Analytical description of ACMs abated
4. Sampling and analytical methods used and evidence of their accuracy
5. Number, duration, and results of samples collected

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. Air quality for supplied air systems: Provide air used for breathing in Type "C" 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.

H. Delivery: Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to the Project Site in the manufacturer's containers.

PART 2 EQUIPMENT

2.1 AIR PURIFYING RESPIRATORS

A. Respirator Bodies: Provide at a minimum, 1/2 face negative pressure respirators.

B. Filter Cartridges: Provide, at a minimum, P100 (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 ANSI Z228.2 (1980). In addition, a chemical cartridge 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. Supplied air respirator systems: Provide equipment capable of producing air of the quality and volume required by the above reference standards applied to the site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.

PART 3 EXECUTION

3.1 GENERAL

A. Respiratory Protection Program: Must comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

B. Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.

C. 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 asbestos fibers or airborne lead or cadmium in excess of the action levels until the area has been cleared for re-occupancy. **Prohibit all personnel who enter the Work Areas where respiratory protection is required from removing respiratory protection within the Work Area. Personnel with repeated infractions shall be removed from the Project Site and prohibited from returning**.

D. Do not allow the use of single-use, disposable, or quarter-face respirators during asbestos abatement for any purpose.

3.2 FIT TESTING

A. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.

B. 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 seal check fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980) and 29 CFR 1910.134.

3.3. PERMISSIBLE EXPOSURE LIMITS (PEL)

8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed the following:

A. Time Weighted Average (TWA) - 0.1 fibers/cubic centimeter

B. Excursion Level (EL) of 1.0 fibers/cubic centimeter over a 30 minutes sampling period performed by the Contractor's Consultant at the commencement of every work period.

3.4 TYPE OF RESPIRATORY PROTECTION REQUIRED

Provide Respiratory Protection for asbestos work in accordance with the requirements of the OSHA Asbestos Construction Standard, 29 CFR 1926.1101, paragraph (h).

3.5 AIR PURIFYING RESPIRATORS

The Contractor's employees shall wear at minimum the following respiratory protection while setting up for ceiling panel removal during the project:

A. Negative pressure air purifying - half face mask: Supply a sufficient quantity of P100 respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level that is uncomfortable to the worker. Require that regardless of flow, filter cartridges be

replaced after 24 hours of use. Require that high efficiency elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator be washed each time a worker leaves the Work Area.

B. If chemical agents are used for any purpose, provide appropriate chemical filtration cartridges for the chemical used. Consult SDS sheet for the chemical to determine appropriate filtration cartridges.

END OF SECTION 02 82 13.03

SECTION 02 83 00

LEAD-BEARING PAINTS OR COATINGS

PART 1 GENERAL

1.1 SCOPE OF WORK

This section describes the equipment and procedures required for protecting workers against lead contamination. If paint with any amount of lead in it is subjected to renovation or demolition forces, which may cause paint particles to become airborne, unacceptable levels of lead exposure to on-site personnel and environmental lead contamination could result, depending on the method and extent of demolition performed. These paints could pose lead inhalation or ingestion hazards if burned, pulverized or converted to dust and disturbed, resulting in fumes or dust becoming airborne.

According to the OSHA Lead Exposure in Construction Standard, 29 CFR 1926.62, paragraph (d)(2)(v), until an employee exposure assessment is performed which determines actual employee exposures will not be above the Permissible Exposure Limit (PEL), 50.0 ug/m^3, the following interim employee protection must be provided:

A. appropriate respiratory protection;
B. appropriate personal protective clothing and equipment;
C. designated change areas;
D. hand washing facilities;
E. biological monitoring consisting of blood sampling and analysis for lead and zinc protoporphyrin;
F. and lead training in accordance with the standard.

Demolition activities which will involve surfaces coated with lead-bearing paints or resulting accumulations of dust shall be initiated in conformance with 29 CFR 1926.62 (d)(2)(v) until an employee exposure assessment is developed which documents the tasks involved will not expose employees to airborne concentrations of lead above the PEL or action level. Once it is determined and documented that employees will not be exposed at or above the action level, reduced personal protective equipment measures may be employed.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

PART 2 PRODUCTS

2.1 GENERAL

A. Wetting Materials: For wetting prior to renovation/demolition of surfaces coated with lead-bearing paints. Use either amended water or a removal encapsulant solution.

B. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, or 6.0 mil thick as needed, clear, frosted, or black.

C. Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

D. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

E. Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags.

F. Fiber Drums: When needed provide fiber drums to containerize lead waste materials that may puncture or break the disposal bags.

G. HEPA-Filtered Vacuum: High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining fibers or particulates. Filters should be of 99.97% efficiency for retaining particulates of 0.3 microns or larger.

PART 3 EXECUTION

3.1 GENERAL

The work described in this section includes demolition of surfaces coated with lead-bearing paints and the work practices to reduce the potential for the exposures.

3.2 POLYETHYLENE BARRIERS

A. Polyethylene Barriers: Install critical primary barriers over all penetrations and openings to areas where abatement activities involving lead-bearing paints will be conducted. Install secondary barrier as a drop cloth a clear 6-mil sheet polyethylene in all areas where renovation/demolition of surfaces with lead-bearing paints or coatings is to be carried out. Completely cover floor with sheet polyethylene. Support sheet polyethylene on walls with duct tape and prevent its falling during removal operations.

B. Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.

C. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet wet until bagged.

3.3 WORKER TRAINING

A. State and Local License: All workers are to be trained, certified and accredited as required by state or local code or regulation.

B. In accordance with 29 CFR 1926.62, train all workers regarding the dangers inherent in working with surfaces containing or coated with lead-bearing materials and in proper work procedures and personal and area protective measures.

3.4 EXPOSURE MONITORING

A. During the abatement or demolition activities involving surfaces coated with lead-bearing paints, the Contractor shall conduct an exposure assessment for employees engaged in activities such as manual demolition, manual scraping, manual sanding, power tool cleaning, rivet busting, abrasive blasting, welding, cutting, torch burning, debris cleanup and debris removal. A representative number of employees and job types should be monitored to develop the exposure assessment. Whenever a change in equipment, process, control methods or personnel are instituted, additional monitoring should be conducted. Each employee monitored must be notified in writing of the results that represent that employee's exposure.

B. Objective data may be used in lieu of actual monitoring if the data is determined to be relevant in assessing the anticipated exposures associated with the planned activities. Objective data may be obtained from insurance companies, trade organizations, exposure sampling data from similar operations or area monitoring data associated with similar operations. Similar operations should be interpreted to

mean activities which involve the same employee tasks and exposure conditions as those to which the data is to be extrapolated.

3.5 BIOLOGICAL MONITORING

The Contractor(s) shall conduct biological monitoring consisting of blood sampling and analysis for lead and zinc protoporphyrin for personnel performing demolition activities involving surfaces coated with lead-bearing paints at the beginning and conclusion of the project. If the employee exposure assessment indicates workers are exposed to airborne lead concentrations exceeding the action level for more than 30 days then a medical surveillance program should be instituted. If an employee's blood lead level exceeds 40 micrograms per deciliter (ug/dl) follow up blood testing and medical monitoring is required in accordance with the OSHA standard. The biological monitoring and medical surveillance should be conducted in accordance with 29 CFR 1926.62 (j).

3.6 PROTECTIVE CLOTHING

A. Coveralls: Provide cloth full-body disposable coveralls and hats, require that they be worn by all workers in the Work area. The disposable coveralls shall be removed prior to leaving the Work area and properly containerized for disposal. Prior to removal, the disposable coveralls shall be HEPA vacuumed to remove visible accumulations of dust. Visible dust accumulations must not be removed by compressed air or other means that may result in uncontrolled dispersal of the dust. Dispose of coveralls as lead waste at completion of all work.

B. Boots: Provide rubber work boots with non-skid soles, and where required by OSHA, foot protection for all workers. Provide 2 spare pairs of boots for use by authorized site visitors such as the Owner or regulatory personnel. Provide boots at no cost to workers. Do not allow boots to be removed from the Work area unless decontaminated to the satisfaction of the Owner's Consultant.

C. Hard Hats: Provide head protection (hard hats) as required by OSHA for all workers, and provide 2 spares for use by the Owner and Owner's Representative. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from Work area at the end of the work.

D. Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work area. Do not remove gloves from Work area and dispose of as lead waste at the end of the work.

3.7 RESPIRATORY PROTECTION

A. Instruct and train each worker involved in renovation or demolition of surfaces coated with lead-bearing paints 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 lead concentrations until the work area is completely decontaminated or until a negative exposure assessment is produced.

B. Use respiratory protection appropriate for the airborne lead concentration encountered in the work area or as required for other toxic or oxygen-deficient situations that may be encountered.

C. Except to the extent that more stringent requirements are written directly into the Contract Documents, 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.

1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1926.62, 29 CFR 1926.1101 and 29 CFR 1910.134.
2. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.
3. NIOSH - National Institute for Occupational Safety and Health
4. MSHA - Mine Safety and Health Administration

D. Respirator Bodies: Provide at a minimum, 1/2 face negative pressure respirators.

E. Filter Cartridges: Provide, at a minimum, P100 (HEPA) 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 ANSI Z228.2 (1980). In addition, a chemical cartridge 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.

F. Respiratory Protection Program: Must comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and the OSHA Respiratory Protection Standard (29 CFR 1910.134). Require respiratory protection be used at all times that there is any possibility of disturbance of lead-bearing materials unless a negative exposure assessment for the activity has been produced or until the area has been cleared for re-occupancy. Prohibit all personnel who enter the Work areas from removing respiratory protection within the Work area. Personnel with repeated infractions shall be removed from the Project Site and prohibited from returning.

G. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

H. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.

I. 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 (1980).

J. At a minimum, until a negative exposure assessment is produced for each applicable job function, the Contractor's employees shall wear a negative pressure air purifying - half face mask. Supply a sufficient quantity of high efficiency respirator filters approved for lead dust so workers can change filters at any time that flow through the face piece decreases to the level that is uncomfortable to the worker. Require that regardless of flow, filter cartridges be replaced after 24 hours of use. Require entire exterior housing of respirator be washed each time a worker leaves the work area.

3.8 HYGIENE FACILITIES

The OSHA Lead Exposure in Construction standard, 29 CFR 1926.62, requires hand washing facilities to be provided where occupational exposure to lead occurs. Due to

the potential for the renovation activities to produce dust with measurable lead loading, the Contractor shall provide a designated hand washing area(s) for use by employees prior to each break period and at the end of each work shift involving renovation or demolition of surfaces coated with lead-bearing paints. The hand washing facilities should be equipped with an adequate supply of cleansing agents and towels for use by affected employees. Hand washing will significantly reduce the lead ingestion potential for employees who may eat, drink, smoke or apply cosmetics during break periods and will limit the spread of potential lead contamination beyond the Project Site.

3.9 WORK PRACTICES AND HOUSEKEEPING

A. Abatement/demolition activities involving lead-bearing paints or coatings shall be performed utilizing wet methods. Amended water or dust control agents shall be applied prior to demolition of surfaces coated with lead-bearing paints to reduce the amount of dust generated during demolition.

B. Accumulations of dust shall be cleaned from floors and other surfaces by vacuuming. The vacuum methods utilized must employ vacuums equipped with high efficiency particulate air (HEPA) filtration per OSHA lead standard requirements. Shoveling, dry or wet sweeping and brushing may be used only where vacuuming has been tried and found to be ineffective.

C. Compressed air shall not be used to remove dust accumulations from any surface unless it is used in conjunction with a negative pressure enclosure or similar ventilation system designed to capture airborne dust created by the use of compressed air. Any such ventilation system should be equipped with HEPA filtration to produce no visible emissions.

D. Each time work area is entered put on new disposable coverall, new head cover, and a clean respirator.

3.10 ADDITIONAL PROTECTIVE EQUIPMENT

A. Disposable coveralls, head covers, appropriate work boots/footwear, and, if necessary, respirators shall be provided by the Contractor for the Owner, Owner's Representative, Owner's Consultant and other authorized representatives who may inspect the Project Site. Provide two (2) powered air purifying respirators (PAPRs), six (6) complete coveralls and 2 PAPR respirator filter changes per day per person visiting the Project Site.

B. Provide worker protection as required by the most stringent OSHA and/or USEPA standards applicable to the work.

3.11 WORK AREA RESTRICTIONS

A. The Contractor shall ensure <u>all personnel</u> who enter a lead work area do <u>NOT</u> eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the work area. Personnel with repeated infractions will be removed from the project work area and prohibited from returning to the Project Site.

B. The Contractor shall instruct all personnel who enter a lead work area to completely utilize the disposable coveralls, including wearing the hood.

C. The Contractor shall prohibit personnel from altering the disposable coveralls (cutting off sleeves, hoods, etc.) and shall ensure any person whose disposable coveralls become ripped or torn while in the work area proceeds immediately to the Decontamination Unit to don a new pair of coveralls.

D. The Contractor shall prohibit personnel who enter the work area from removing respiratory protection while inside the work area. Personnel with repeated infractions will be removed from the project work area and prohibited from returning to the Project Site.

E. The Contractor shall prohibit personnel who enter a lead work area in leather work boots from removing the leather work boots from the work area. Upon completion of the project, the leather work boots shall be placed in an appropriately labeled waste bag and disposed as lead waste.

F. Compressed air must not be used to remove dust accumulations from any surface unless it is used in conjunction with a negative pressure enclosure or similar ventilation system designed to capture airborne dust created by the use of compressed air.

G. Power tools which are not equipped with HEPA-filtered dust collection systems shall not be used on surfaces coated with lead-bearing paints unless the work area where the surfaces are located is isolated with polyethylene critical barriers and ventilated with HEPA-filtered fans.

END OF SECTION 02 83 00

SECTION 02 83 00.01
CADMIUM-BEARING PAINTS OR COATINGS

PART 1 GENERAL

1.1 SCOPE OF WORK

This section describes the equipment and procedures required for protecting workers against cadmium contamination. If paint with any amount of cadmium in it is subjected to renovation or demolition forces, which may cause paint particles to become airborne, unacceptable levels of cadmium exposure to on-site personnel and environmental contamination could result, depending on the method and extent of demolition performed. These paints could pose cadmium inhalation or ingestion hazards if burned, pulverized or converted to dust and disturbed, resulting in the fumes or dust becoming airborne.

Demolition activities which will involve surfaces coated with cadmium-bearing paints or resulting accumulations of dust shall be initiated in conformance with 29 CFR 1926.1127.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

PART 2 PRODUCTS

2.1 GENERAL

A. Wetting Materials: For wetting prior to renovation/demolition of surfaces coated with cadmium-bearing paints. Use either amended water or a removal encapsulant solution.

B. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, or 6.0 mil thick as needed, clear, frosted, or black.

C. Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

D. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

E. Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags.

F. Fiber Drums: When needed provide fiber drums to containerize lead waste materials that may puncture or break the disposal bags.

G. HEPA-Filtered Vacuum: High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining fibers or particulates. Filters should be of 99.97% efficiency for retaining particulates of 0.3 microns or larger.

PART 3 EXECUTION

3.1 GENERAL

The work described in this section includes demolition of surfaces coated with cadmium-bearing paints and the work practices to reduce the potential for the exposures.

3.2 POLYETHYLENE BARRIERS

A. Polyethylene Barriers: Install critical primary barriers over all penetrations and openings to areas where abatement activities involving cadmium-bearing paints will be conducted. Install secondary barrier as a drop cloth a clear 6-mil sheet polyethylene in all areas where renovation/demolition of surfaces with cadmium-bearing paints or coatings is to be carried out. Completely cover floor with sheet polyethylene. Support sheet polyethylene on walls with duct tape and prevent its falling during removal operations.

B. Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.

C. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet wet until bagged.

3.3 WORKER TRAINING

A. State and Local License: All workers are to be trained, certified and accredited as required by state or local code or regulation.

B. In accordance with 29 CFR 1926.1127 (n)(4), train all workers regarding the dangers inherent in working with surfaces containing or coated with cadmium-bearing materials and in proper work procedures and protective measures.

3.4 EXPOSURE MONITORING

A. During the abatement or demolition activities involving surfaces coated with cadmium-bearing paints, the Contractor shall conduct an exposure assessment for employees engaged in activities such as manual demolition, manual scraping, manual sanding, power tool cleaning, rivet busting, abrasive blasting, welding, cutting, torch burning, debris cleanup and debris removal. A representative number of employees and job types should be monitored to develop the exposure assessment. Whenever a change in equipment, process, control methods or personnel are instituted, additional monitoring should be conducted. Each employee monitored must be notified in writing of the results that represent that employee's exposure.

B. Objective data may be used in lieu of actual monitoring if the data is determined to be relevant in assessing the anticipated exposures associated with the planned activities. Objective data may be obtained from insurance companies, trade organizations, exposure sampling data from similar operations or area monitoring data associated with similar operations. Similar operations should be interpreted to mean activities which involve the same employee tasks and exposure conditions as those to which the data is to be extrapolated.

3.5 BIOLOGICAL MONITORING

The Contractor(s) shall conduct biological monitoring consisting of sampling and analysis for cadmium in urine, Beta-2 microglobulin in urine, and cadmium in blood for personnel performing demolition activities involving surfaces coated with cadmium-bearing paints at the beginning and conclusion of the project. If the employee exposure assessment indicates workers are exposed to cadmium concentrations exceeding the action level of 2.5 micrograms per cubic meter (ug/m^3) as an 8-hour Time Weighted Average (TWA) for more than 30 days then a medical surveillance program should be instituted. The biological monitoring and medical surveillance should be conducted in accordance with 29 CFR 1926.1127 (l).

3.6 PROTECTIVE CLOTHING

If an employee is exposed to airborne cadmium above the Permissible Exposure Limit (PEL) of 5.0 ug/m^3 TWA or where skin or eye irritation is associated with cadmium exposure, the employer must provide the following protective clothing, at no cost to employees:

A. Coveralls: Provide cloth full-body disposable coveralls and hats, require that they be worn by all workers in the work area. The disposable coveralls shall be removed prior to leaving the work area and properly containerized for disposal. Prior to removal, the disposable coveralls shall be HEPA vacuumed to remove visible accumulations of dust. Visible dust accumulations must not be removed by compressed air or other means that may result in uncontrolled dispersal of the dust. Dispose of coveralls as cadmium waste at completion of work.

B. Gloves: Provide work gloves to all workers and require that they be worn at all times in the work area. Do not remove gloves from work area and dispose of as lead waste at the end of the work.

C. Face Shields or vented goggles. Provide face shields or vented goggles to all employees working in areas where eye irritation is associated with cadmium exposure and require that they be worn at all times in the work area.

Provide the following additional protective equipment in work areas:

A. Boots: Provide rubber work boots with non-skid soles, and where required by OSHA, foot protection for all workers. Provide 2 spare pairs of boots for use by authorized site visitors such as the Owner or regulatory personnel. Provide boots at no cost to workers. Do not allow boots to be removed from the work area unless decontaminated to the satisfaction of the Owner's Consultant.

B. Hard Hats: Provide head protection (hard hats) as required by OSHA for all workers, and provide 2 spares for use by the Owner and Owner's Representative. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the work area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from a work area.

3.7 RESPIRATORY PROTECTION

A. Instruct and train each worker involved in renovation or demolition of surfaces coated with cadmium-bearing paints 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 cadmium concentrations until the work area is completely decontaminated or until a negative exposure assessment is produced.

B. Use respiratory protection appropriate for the airborne cadmium concentration encountered in the work area or as required for other toxic or oxygen-deficient situations that may be encountered.

C. Except to the extent that more stringent requirements are written directly into the Contract Documents, 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.

1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1926.1127 and 29 CFR 1910.134.
2. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.
3. NIOSH - National Institute for Occupational Safety and Health
4. MSHA - Mine Safety and Health Administration

D. Respirator Bodies: Provide at a minimum, 1/2 face negative pressure respirators.

E. Filter Cartridges: Provide, at a minimum, P100 (HEPA) 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 ANSI Z228.2 (1980). In addition, a chemical cartridge 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.

F. Respiratory Protection Program: Must comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and the OSHA Respiratory Protection Standard (29 CFR 1910.134). Require respiratory protection be used at all times that there is any possibility of disturbance of cadmium-bearing materials unless a negative exposure assessment for the activity has been produced or until the area has been cleared for re-occupancy. Prohibit personnel who enter the work areas from removing respiratory protection within the work area. Personnel with repeated infractions shall be removed from the Project Site and prohibited from returning.

G. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose involving work with cadmium.

H. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.

I. 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 (1980).

J. At a minimum, until a negative exposure assessment is produced for each applicable job function, the Contractor's employees shall wear a negative pressure air purifying - half face mask. Supply a sufficient quantity of high efficiency respirator filters approved for cadmium dust so workers can change filters at any time that flow through the face piece decreases to the level that is uncomfortable to the worker. Require entire exterior housing of respirator be washed each time a worker leaves the work area.

3.8 HYGIENE FACILITIES

The OSHA Cadmium Construction standard, 29 CFR 1926.1127, requires showers and hand washing facilities be provided where occupational exposure to cadmium above the PEL occurs. Due to the potential for the demolition activities to produce dust with measurable cadmium loading, the Contractor shall provide a designated hand washing area(s) for use by employees prior to each break period and at the end of each work shift involving renovation or demolition of surfaces coated with cadmium-bearing

paints. The hand washing facilities should be equipped with an adequate supply of cleansing agents and towels for use by affected employees. Hand washing will significantly reduce the ingestion exposure potential for employees who may eat, drink, smoke or apply cosmetics during break periods and will limit the spread of potential cadmium contamination beyond the Project Site.

3.9 WORK PRACTICES AND HOUSEKEEPING

A. Abatement/demolition activities involving cadmium-bearing paints or coatings shall be performed utilizing wet methods. Amended water or dust control agents shall be applied prior to demolition of surfaces coated with cadmium-bearing paints to reduce the amount of dust generated during demolition.

B. Accumulations of dust shall be cleaned from floors and other surfaces by vacuuming. The vacuum methods utilized must employ vacuums equipped with high efficiency particulate air (HEPA) filtration per OSHA requirements. Shoveling, dry or wet sweeping and brushing may be used only where vacuuming has been tried and found to be ineffective.

C. Compressed air shall not be used to remove dust accumulations from any surface unless it is used in conjunction with a negative pressure enclosure or similar ventilation system designed to capture airborne dust created by the use of compressed air. Any such ventilation system should be equipped with HEPA filtration to produce no visible emissions.

3.10 WORK AREA RESTRICTIONS

A. The Contractor shall ensure all personnel who enter a cadmium work area do NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the work area. Personnel with repeated infractions will be removed from the project work area and prohibited from returning to the Project Site.

B. The Contractor shall instruct all personnel who enter a cadmium work area where exposures are expected to be above the PEL to completely utilize disposable coveralls, including wearing the hood. The Contractor shall prohibit personnel from altering the disposable coveralls (cutting off sleeves, hoods, etc.) and shall ensure any person whose disposable coveralls become ripped or torn while in the work area proceeds immediately to the Decontamination Unit to don a new pair.

C. The Contractor shall prohibit personnel who enter the work area from removing respiratory protection while inside the work area. Personnel with repeated infractions will be removed from the work area and prohibited from returning to the Project Site.

D. The Contractor shall prohibit personnel who enter a cadmium work area in leather work boots from removing the leather work boots from the work area. Upon completion of the project, the leather work boots shall be placed in an appropriately labeled waste bag and disposed as cadmium waste. Rubber boots must be effectively decontaminated prior to removing them from the work area.

E. Power tools which are not equipped with HEPA-filtered dust collection systems shall not be used on surfaces coated with cadmium-bearing paints unless the work area where the surfaces are located is isolated with polyethylene critical barriers and ventilated with HEPA-filtered fans.

END OF SECTION 02 83 00.01

SECTION 02 84 00
PCB-CONTAINING EQUIPMENT REMOVAL

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Removal and disposal requirement for PCB-containing lighting system ballasts.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCE STANDARDS

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

A. American Petroleum Institute (API)

1. API Rp 2003, Protection Against Ignitions Arising out of Static, Lightning and Stray Currents.
2. API Publ 2015, Safe Entry and Cleaning Petroleum Storage Tanks.
3. API Publ 2217, Guidelines for Confined space Work in the Petroleum Industry.
4. API Publ 2219, Safe Operation of Vacuum Trucks in Petroleum Service.

B. Code of Federal Regulations (CFR)

1. CFR 29 CFR 1910.146 OSHA - Permit Required Confined Spaces.
2. CFR 29 CFR 1926/1910 Construction Industry Occupational Safety and Health Standards.
3. CFR 40 CFR 260 General Regulations for Hazardous Waste Management.
4. CFR 40 CFR Part 261 Identification and Listing of Hazardous Waste.
5. CFR 40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste.
6. CFR 40 CFR Part 263 Standards Applicable to Transporters of Hazardous Waste.
7. CFR 40 CFR Part 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
8. CFR 40 CFR Part 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
9. CFR 49 CFR 171 Department of Transportation Regulations to Stipulate Requirements for Containers and Procedure for Shipment of Hazardous Waste.
10. CFR 40 CFR Part 761 Polychlorinated Biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.

C. National Fire Protection Association (NFPA)

1. NFPA 30 (1990) Flammable and Combustible Liquids Code.
2. NFPA 70 B (1990) Recommended Practice for Electrical Equipment Maintenance.
3. NFPA 325M (1991) Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids.
4. NFPA 327 (1987) Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers.

D. National Institute of Occupational Safety and Health (NIOSH)

1. NIOSH 80-106 Criteria for a Recommended Standard for Working in Confined Spaces.

E. United States Environmental Protection Agency (EPA)

1. EPA SW-846, Test Methods for Evaluating Solid Waste.

1.4 MEASUREMENT

A. Removal and Disposal of PCB-containing Light Ballasts and Switch Boxes

The removal and disposal of PCB-containing light ballasts, associated connections, and switch boxes found on site shall be included in the Base Bid for abatement/demolition. The Contractor and Owner's Consultant on-site representative shall concurrently document the amount of material removed and containerized for disposal prior to removal of the materials from the Project Site.

1.5 SUBMITTALS

A. Work Plan

Before proceeding with any removal and disposal work, submit a work plan that includes the procedures proposed for the accomplishment of the removal and disposal work. The procedures shall provide for safe conduct of the work; careful removal and disposition of solid materials and liquid wastes; and property protection. The procedures shall provide a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. The work plan shall be based on work experience, and the guidance provided in this specification.

B. Health and Safety Plan

Before proceeding with any removal and disposal work, submit a site-specific health and safety plan (HASP) that includes the necessary precautions and safety procedures proposed for the accomplishment of the removal and disposal work. Include detailed information regarding temporary controls, including lock-out/tag-out procedures, and hazardous material handling. The HASP shall include procedures specified in this Section and in Section 00 73 19, Health, Safety, and Emergency Response.

C. Notice of Acceptance

After removing PCB light fixture ballasts from the Project Site, submit the name and location of the properly licensed disposal facility and a copy of the written agreement from the disposal facility agreeing to accept contaminated materials for disposal. This documentation shall include manifests with quantities agreed by the Owner and Owner's Consultant. The documentation is due 14 days after removal from the Project Site.

D. Recycling and Disposal Documents

Provide copies of all licenses, certificates, permits, agreements, manifests, chain of custody records, weigh tickets, meter recordings, delivery tickets, and receipts required or issued for material recycling or disposal. Provide a list of the equipment used, the methods used, and the disposal areas and facilities used for disposing ballasts, switch boxes, and contents. Provide a copy of the results of tests performed to comply with the requirements of each recycling or disposal facility.

E. Manifests

Submit a copy of the official manifest for each shipment of contaminated materials including, but not limited to, electrical transformer components and fluids, light ballast contents, expended cleaning liquids, structural components, and ballast carcasses evidencing delivery of the material to the approved licensed disposal facility. All manifests shall be in accordance with the requirements of 40 CFR, Part 262, 40 CFR, Part 761, Section 23 and State and local regulations.

1.6 REGULATORY REQUIREMENTS

A. Statutes and Regulations

Removal, transportation, and disposal work associated with liquids or fluids containing PCBs shall be carried out in accordance with 29 CFR, Part 1910. Obtain all licenses, permits, certifications, receipts, etc., as required by such laws, regulations, codes, and ordinances.

B. General

All health and safety regulations relating to the removal, transportation, and disposal of ballasts and switch box contents available in 29 CFR, Parts 1926 and 1910 shall be complied with at all times. All pertinent regulations such as 29 CFR Parts 1910 and 1926 and 40 CFR 260, 261, 262, 263, 264, 761 and applicable state and local regulations shall be followed for storing, containing, and handling drums and small containers and for maintaining equipment for handling materials.

C. Protection of Employees and Visitors

Address the work in a manner such that its employees and site visitors will not be subjected to hazardous and unsafe conditions. Comply with all safety precautions, as required by 29 CFR Parts 1926 and 1910 and NFPA 329. Conduct and document the appropriate level of electrical lock-out/tag-out procedures.

D. Toxicity Considerations

Exercise care to minimize exposure to PCB-containing material during the handling of PCB-containing materials.

PART 2 PRODUCTS

2.1 GENERAL

Provide incidental equipment and materials necessary to complete specified activities, including, but not limited to, provision of drums for PCB-containing ballasts, and any scaffolding or lifting equipment necessary to reach the areas for removal.

PART 3 EXECUTION

3.1 GENERAL

Disconnect electrical power from transformers, ballasts, and switch boxes being removed. Remove and containerize all PCB-containing light ballasts and dispose of properly. Obtain all required permits and approval documents. Provide approved containers, vehicles, equipment, labor, signs, placards, labels, manifests, and other documents necessary for accomplishing the work including materials necessary for spill cleanup for material from removal operations. Coordinate and pay for any additional sampling that may be necessary such as waste characterization sampling for proper disposal.

A. Safety Guidelines

Personnel working inside and in the general vicinity of the cleanup area shall be trained and made thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work. Personnel shall use proper protection and safety equipment during work in and around ballasts, switch boxes, and electrical transformer as specified in API Publication 2217, AP RP 1604, and in the site-specific health and safety plans. Proper guidelines regarding safety precautions shall be required for handling all other items.

B. Control of the Work

Perform work in accordance with the requirements and specifications and take direction only from the Owner or Owner's Consultant for this contract. Any other party that proposes to give direction to the contractor shall be immediately referred to Owner.

3.2 CONTENTS VERIFICATION

A. Sampling and Analytical Testing

No destructive sampling of building systems suspected of containing either PCBs or mercury components was performed. Any additional testing necessary is the responsibility of the Contractor. If necessary, the Contractor shall collect samples to the extent required by the approved off-site disposal facility receiving the material. All analytical testing as required under this section shall be paid for by the Contractor and is incidental to the Contract. The analysis shall require a five working day completion time from the date of sample receipt at the laboratory. Meet all regulatory requirements, including chain-of-custody documentation.

3.3 EXAMINATION

A. Sampling and Testing Requirements of Others

Collect samples of all container contents as required by the approved disposal facility for the material to be disposed. Perform all testing as described in Subpart 3.02.A. All documentation regarding the sampling and analysis such as sample locations, rationale, chain-of-custody, test results, etc., shall be maintained by the Contractor. A copy of all such test reports shall be furnished to the Owner and Owner's Consultant prior to removal of ballasts and switch boxes.

3.4 DISPOSAL REQUIREMENTS

A. General

Materials requiring disposal shall become the property of the Contractor. Dispose light ballasts and switch boxes at a facility licensed to receive, clean, recycle, and dispose PCB-containing electrical equipment. Dispose all wastes in accordance with all local, State, and Federal solid and liquid waste laws and regulations, including those for hazardous waste, when applicable, as well as the Resource Conservation and Recovery Act (RCRA), and conditions specified herein. These services shall include all necessary personnel, labor, packaging, transportation, manifesting or completion of waste profile sheets, equipment, and reports. Maintain all disposal and recycle information for closeout submittal and review by the Owner and Owner's Consultant.

B. Records

Maintain disposal and recycle records for all waste determinations, including (1) appropriate results of analyses performed, (2) sample locations, (3) substances detected, (4) time of collection, and (5) other pertinent data as required by 40 CFR Part 280, Section 74 and 40 CFR Part 262 Subpart D. Record and make available information regarding method of transportation, method of treatment, method of disposal, quantities of waste, the names and addresses of each transporter, and the disposal or reclamation facility. Prepare and maintain copies and originals disposal manifests, waste analyses or waste profile sheets, and certifications of final treatment/disposal signed by the responsible disposal facility official. Following contract completion, the records shall be submitted to the Owner's Consultant and become the property of the Owner.

C. Hazardous/Special Waste Manifests

A USEPA waste generator identification number for the Project Site may be required depending upon the nature of the materials to be disposed. Work with the generator to obtain this or other generator identification numbers. For hazardous and non-hazardous contaminated liquid waste, utilize a State of Indiana approved manifest system in conformance with the requirements identified in 40 CFR Part 262, 40 CFR Part 263 and 40 CFR Part 761.

The manifests shall comply with all of the provisions of the transportation and disposal regulations. Prepare manifests for each load and obtain the appropriate identification numbers and signatures.

Before waste transportation, all of the established pre-transport requirements shall be met. The wastes shall be transported by a certified waste hauler (i.e., the hauler must have an appropriate State waste identification number) in approved containers. All transporters must sign the appropriate portions of the manifest and must comply with all of the provisions established in the applicable regulations. Hazardous waste manifests must be signed by the generator (the Owner).

Provide the Owner's Consultant with manifests, certificates, and other such evidence as may be required by local, State, and Federal regulations, to demonstrate that waste materials of all types were properly transported to, received at, and disposed at approved recycling or disposal facilities. After delivery of the load, provide a copy of the manifest to the Owner and Owner's Consultant.

D. Documentation of Treatment and Disposal

Dispose hazardous wastes at an approved treatment, storage, or disposal facility. The disposal facility shall maintain USEPA or appropriate State permits and waste treatment identification numbers and shall comply with all of the provisions of the disposal regulations. Documentation of acceptance of special waste by a facility legally permitted to treat or dispose those materials shall be furnished to the Owner and Owner's Consultant following the delivery of those materials to the facility.

3.5 SPILLS

A. Spill Responsibility

The Contractor is responsible for cleaning up all the leaks and spills from abatement operations, drums, or other containers staged on the Project Site by the Contractor during abatement activities. Immediate containment actions shall be taken as necessary to minimize the effect to natural surroundings. Notify the Owner, Owner's Consultant and appropriate governmental authorities of the incident. Cleanup shall be in accordance with applicable local, State, and Federal laws and regulations at no additional cost to the Owner.

END OF SECTION 02 84 00

SECTION 02 90 00
MISCELLANEOUS REGULATED MATERIALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Contractor shall furnish all labor, material, equipment, packaging, sampling and testing, and incidentals required to remove/abate, transport and dispose/recycle all substances regulated under Federal, State and local statutes and land ban restrictions. These substances may include but are not limited to:

1. Mercury Devices (i.e., switches, thermostats, vapor lamps)
2. Cathode ray tubes (obsolete televisions and computer monitors)
3. Lead-acid batteries
4. Smoke alarms containing radioactive elements

B. The Contractor shall take all field measurements necessary to provide a proposal for the work, and lay out all work in accordance with the Project Specifications considering existing clearances and conditions. The Contractor shall be responsible for any damage and/or cost caused by any inaccuracy on his/her part. Neither the Owner, the Asbestos Project Designer, nor the Owner's Consultant shall be held responsible for providing accurate measurements of potentially hazardous materials. Any measurements given are to be viewed as estimates only.

C. The Contractor shall be aware that the building contains lead-bearing and cadmium-bearing paints and, as such, the potential for exposure exists. The Contractor shall conduct work involving lead-bearing and cadmium-bearing paints/coatings in accordance with all federal, state, and local regulations.

D. The Occupational Safety and Health Administration (OSHA) provides protection and regulations for the safety and health of workers.

1. The Contractor shall post any applicable State and/or Federal government regulations at the Project Site in prominent locations.
2. The Contractor shall be responsible for training their workers in safe work practices and in proper removal methods when coming in contact with hazardous materials

E. Applicable Regulations:

1. RCRA, 1976 -Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage or disposal of hazardous wastes nationally.
2. Act 64, 1979 - Michigan's Hazardous Waste Management Act: This statute regulates generation, transportation, treatment, storage and disposal of hazardous wastes in Michigan.

F. To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper).

1. Hazardous wastes may not be disposed of in sanitary landfills used for solid waste.

G. Federal, State and local laws and regulations may apply to the storage, handling, and disposal of hazardous materials and wastes generated at the Project Site. The list below includes the regulations that are most frequently encountered.

Local fire prevention regulations:	Local fire chief or fire marshal and codes (including chemical storage requirements)
Building and outdoor storage	Local government building or zoning official requirements (including setbacks)

H. Federal, State and local laws and regulations may apply to the removal, handling, transportation, and disposal of smoke alarms containing radioactive elements, depending upon the amount of radioactive material contained within them.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

PART 2 PRODUCTS

2.1 PACKAGING AND CONTAINERIZATION OF MATERIALS

A. Packaging and containerization materials shall include but not be limited to the following:

1. Lab packing requirements per approved disposal or recycling facility.
2. Fiberboard barrels
3. MDOT approved removable head drums; roll-off boxes or equivalent
4. Drum labels and marking which conform to Federal, State and local regulations
5. Spill prevention countermeasure materials and control products consistent with 49 CFR 173 and Contractor's approved Spill Prevention, Control, and Countermeasure (SPCC) plan.
6. Sampling equipment and containers consistent with standard sampling technique.

PART 3 EXECUTION

3.1 REMOVAL OF MERCURY DEVICES

A. Fluorescent light bulbs and high-intensity discharge (HID) lamps that may contain mercury are present in the buildings and on utility poles on the Project Site. The

Contractor shall be responsible for the removal, transport and recycling or disposal of all mercury containing devices.

1. Some light fixtures and/or associated components may be suitable for recycling or resale. The Contractor is encouraged to account for recycling or resale of such fixtures in its bid, if feasible.
2. The Contractor shall be responsible for the removal of all regulated lamps and bulbs from the associated lighting fixtures. All lamps and bulbs shall be carefully removed from the fixtures and placed in appropriate sized containers equipped with dividers.
3. All containers intended for off-site recycling shall be either shrink-wrapped or placed in a secure crate to avoid accidental breakage. All containers shall be labeled as hazardous waste in accordance with applicable MDOT regulations.
4. The Contractor must use all precautions when handling lamps to avoid accidental breakage. Should accidental breakage of lamps occur, then the lamp debris shall be collected and placed in segregated reinforced drums or similar containers pending disposal.
5. Light ballasts containing PCBs shall be managed in accordance with Section 02 84 00 PCB-CONTAINING EQUIPMENT of the project specifications.

3.2 CATHODE RAY TUBES

A. Obsolete cathode ray tube (CRT) televisions and monitors are present in the northern addition building. The Contractor is responsible to locate and properly remove/transport/dispose of all CRTs prior to demolition. The costs associated with removal and disposal shall be included in the Base Bid for abatement and demolition.

3.3 REMOVAL OF RADIOACTIVE SMOKE ALARMS

A. The Contractor shall remove, segregate from other material, and properly dispose of smoke detectors containing radioactive elements contaminated materials. Disposal shall be accomplished by returning the smoke detectors to the manufacturer or transporting them to a recycling facility licensed to accept radioactive smoke detectors. All work involving handling, transport, and disposal/recycling of the smoke detectors shall be conducted in accordance applicable Federal, State, and local regulations.

3.4 TRANSPORTATION

A. The Contractor shall evaluate all materials associated with abatement/demolition activities to designate materials classification for transportation purposes.

B. The Contractor shall package all hazardous materials for transportation and storage in accordance with 49 CFR 172.101 and applicable sections of 49 CFR 173. In addition, the Contractor shall comply with any packaging requirements identified by the approved disposal or recycling facilities used for waste disposition during this project.

C. The Contractor shall label and mark all hazardous materials packaged and temporarily staged for subsequent off-site transport. Hazardous materials that have been specifically prepared for off-site transport shall be labeled in accordance with 40 CFR 172.101 and 49 CFR 173 Subparts D and E. Contractor shall provide all labels.

D. The Contractor shall ensure that the transporter has applied all appropriate placards to the transport vehicle according to the requirements outlined in 49 CFR 172.101 and 49 CFR Subpart F and all applicable MDOT regulations. The Contractor or transporter shall provide all such placards.

E. Prior to removal of any material, the Contractor shall submit the manifest to the Owner's Consultant for review prior to signature by the Contractor and Owner.

END OF SECTION 02 90 00

SECTION 31 23 00

EXCAVATION, BACKFILL, AND COMPACTION

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Excavation will include removal of the existing building foundations and removal of remnant foundations, structural steel, soil, and debris. Excavated materials will be transported and disposed at a landfill licensed to accept the material, or recycled, as applicable.

B. Backfill material shall be from approved, off-site certified "clean" sources.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCES

A. Conduct excavation, backfill, and compaction work in accordance with all Federal, State, and local requirements, as well as industry standards, including 29 CFR Part 1926.650, Department of Labor, Occupational Safety and Health Administration Standards – Excavations.

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

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
    a. ASTM C 117: Test Method for Material Finer Than No. 200 Sieve in Mineral Aggregates by Washing
    b. ASTM C 136: Sieve Analysis of Fine and Coarse Aggregates
    c. ASTM D 1556: Standard Test Method for Density of Soil in Place by the Sand-Cone Method
    d. ASTM D 1557: 1978 (R 1990) Moisture Density Relations of Soils and Soils-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop
    e. ASTM D 2167: 1994 Test Method for Density and Unit Weight of Soil in place by the Rubber Balloon Method
    f. ASTM D 2487: Classification of Soils for Engineering Purposes
    g. ASTM D 2922: (R 1990) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
    h. ASTM D 3017: Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

a. T27-881988 Standard Specifications for Transportation Materials and Methods of Sampling and Testing "Sieve Analysis of Fine and Coarse Aggregate"

1.4 SUBMITTALS

A. Field test reports to be submitted during construction as specified in the Field Quality Control paragraph in this Section.

1. Grain-size analysis (ASTM C-136) results, including percent passing information for each sieve designation and grain size curve.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Testing and Inspection Service: The Contractor shall employ a geotechnical testing laboratory acceptable to the Owner to perform soil testing service for quality control testing.

1.6 JOB CONDITIONS

A. Existing Utilities: Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

B. Should uncharted, or incorrectly charted, piping or other utilities, drums, cans, etc. be encountered during excavation, immediately consult the Owner and the Owner's Consultant for directions. The Owner is not responsible for drum characterization and removal without written authorization to the Contractor.

C. Cooperate with the Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities immediately to satisfaction of utility owner. Do not interrupt existing utilities serving others, except when permitted in writing by the Owner, and then only after acceptable temporary utility services have been provided. Coordinate with utility companies for shut-off of services if lines are active.

D. Protection of Persons and Property: Barricade open excavations (deeper than 1 foot) by fencing and warning signs. Maintain fencing and warning signs until areas are backfilled to grade. Protect structures, utilities, sidewalks, pavements, curbing, and other facilities which are to remain from damage caused by settlement, lateral movement, undermining, washout, increased traffic load, and other hazards created by earthwork operations.

E. All excavations shall be conducted using required OSHA safety standards by providing adequate bracing or shoring or sloping excavation side slopes at safe grades.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

Imported fill material approved by Owner and specified herein. Imported fill for excavations shall be a granular material meeting MDOT requirements excluding material classified as "B-Borrow." For backfilling operations, use only soil certified from a clean source. Contractor shall unsure that backfill material is uncontaminated and is free of debris, organics, and frozen material. If backfill is not certified as uncontaminated, additional laboratory analyses will be necessary at the expense of the Contractor. Use of demolition debris, crushed concrete, brick, etc. for fill material is not permitted.

2.2 EQUIPMENT

Transport materials using well-maintained and operating vehicles. Once on site, transporting vehicles shall stay on designated haul roads and shall at no time endanger improvements by rutting, overloading, or pumping.

2.3 SOURCE QUALITY CONTROL

Perform necessary construction testing on each type of on-site or imported soil used as compacted fill material. Necessary testing may include (1) Moisture and Density Relationship: ASTM D 1557, (2) Mechanical Analysis: AASHTO T 88, and (3) Plasticity Index: ASTM D 4318. Provide adequate documentation or sampling that the backfill is not contaminated.

PART 3 EXECUTION

3.1 SAFETY

A. Examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Owner and Owner's Consultant in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

B. Barricades

1. Use traffic barricades with flashing lights where driver or pedestrian safety may be jeopardized. In areas that are left open overnight, provide adequate barricades to prevent the unauthorized entrance into the work area.
2. Barricade and clearly mark any entrance or exit to a work area where the safety of any person entering or exiting the area may be jeopardized. The barricade exit shall have a minimum warning that reads "DANGER-AUTHORIZED PERSONNEL ONLY." Prior to the start of Work, contact the local Fire Marshal and other local authorities for the requirements of barricading any work area, all costs associated with installing and removing the barricades are incidental to this contract.

C. Utilities

1. Verify all locations of structures, substructures, and utilities prior to the start of demolition.

2. The locations of all underground utilities and structures must be marked prior to the beginning demolition. Utility and subsurface markings shall be in a manner that will allow equipment operators and other personnel a clear view of the utility locations.
3. Coordinate with respective utility authorities/owners for the deactivation/disconnection of utility services before demolition begins.
4. Disconnect utilities as necessary to complete the work. The Contractor shall protect all substructures and utilities encountered from distress.
5. Any damage to existing utilities caused by Contractor's efforts will be repaired at no cost to the Owner.
6. Contact the affected utility owner as soon as any damage is discovered.
7. The utility owner shall make the determination as to who is qualified to make the necessary repairs.

D. Excavation

1. Slope and stabilize all excavations in compliance with local codes and ordinances having jurisdiction and OSHA requirements. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfill activities.
2. Obtain and pay for all construction-related permits, as necessary.
3. Divert clean surface water runoff away from excavations to the maximum extent practical.
4. Install orange or yellow fluorescent warning tape at least 20 feet in all directions from the perimeter of excavations.
5. If drums or containers are encountered, notify the Owner and Owner's Consultant.

3.2 SHORING AND BRACING

Provide all materials necessary for shoring and bracing, such as trench boxes, sheet piling, uprights, stringers, and cross-braces, in good serviceable condition, when necessary. Establish requirements for excavation shoring and bracing to comply with local codes and authorities having jurisdiction. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses. All shoring and bracing shall be designed by a Professional Engineer licensed to practice in the State of Michigan and experienced in the design of temporary earth retention systems. Such additional engineering costs and costs to monitor the conditions of adjacent structures are the responsibility of the Contractor and are incidental to the Contract. Shoring and bracing necessary to maintain the structural integrity of adjacent businesses must be covered by the Contractor's insurance policies.

3.3 MATERIAL STORAGE

Stockpile excavated materials in designated areas as permitted by the Owner. Place, grade, and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Dispose of excess soil material and waste materials as herein specified.

3.4 BACKFILL AND FILL

A. Place acceptable soil material in uniform layers to the required elevations. Completely fill below-grade areas and voids resulting from trench excavations.

B. Backfill excavations and subsurface holes as promptly as work permits, but not until completion of the following:

1. Acceptance by the Owner or Owner's designee.
2. Inspection and acceptance of the Installer.
3. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
4. Removal of trash and debris.

C. Concrete, masonry demolition debris or any other demolition debris material will not be allowed for use as fill material.

D. Placement and Compaction:

1. Place backfill and fill materials in layers not more than 9".
2. Compaction is required.

3.5 GRADING AND COMPACTION

A. Grading: Following demolition of buildings, removal of subsurface features and utilities, and removal of debris from the Project Site, uniformly grade the Project Site to existing grade in a manner to establish positive drainage towards the eastern portion of the property. The portion of the Project Site where the power house building and foundation are removed shall be filled and graded to a gentle slope (less than or equal to 30% slope). Following grading, the Project Site shall be raked smooth to eliminate tire tracks and provide a smooth, finished surface suitable for reseeding.

B. Compaction: Uniformly place fill materials used for filling and grading all areas in lifts or layers not to exceed 9 inches loose measure. Compact soil to 95 percent of maximum density, in accordance with ASTM 1557 at moisture content of not less than 1 percent below and not more than 3 percent above optimum moisture content.

3.6 MAINTENANCE

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to prevent ponding and promote positive drainage.

B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.7 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from site: Remove trash/debris and properly recycle or dispose of it off site.

B. Disposal onsite: Removed waste materials, demolition debris, and contaminated soils from excavations shall be transported and properly recycled or disposed. No on-site disposal will be permitted.

END OF SECTION 31 23 00

SECTION 32 92 00
TURFS AND LAWNS

PART 1 GENERAL

1.1 SCOPE OF WORK

A. This section includes restoration of turns and lawns.

1.2 RELATED SECTIONS

Diagrams and general provisions of Contract, Contract Documents, and other Project Specification sections, apply to this section.

1.3 REFERENCE STANDARDS

Except to the extent that more stringent requirements are written directly into the Contract Documents, 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.

1.4 DELIVERY AND STORAGE OF MATERIALS

Deliver fertilizer and lawn seed in original unopened containers. Containers shall bear the manufacture's guaranteed analysis, and shall be stored in a dry location.

PART 2 PRODUCTS

2.1 SUBMITTALS

A. Seed Mixture

1. Submit seed vendor's certification for prepared grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.

B. Topsoil

1. One (1) gallon representative sample of soil to be supplied. This sample will be retained by the Owner's Consultant as the comparison standard for approving soil loads delivered.

2.2 MATERIALS

A. Fertilizer

1. Provide commercial balanced 10-10-10 fertilizer.

B. Topsoil

1. Approved by the Owner Representative shall be a friable loam, typical of cultivated topsoil locally, containing at least 2% of decayed organic matter (humus). It shall be taken from a well drained, arable site. It shall be chemically uncontaminated and reasonably free of subsoil, stones, earth clods, sticks, roots, or other objectionable extraneous matter or objectionable matter may be removed by screening prior to delivery.

2. The natural unadjusted PH of the topsoil tested by the Owner shall be in the range of 5.8 to 7.2. PH's of less than 6.5 shall be adjusted through the addition of pulverized agricultural limestone at the recommended rate to a PH range of 6.5 to 7.0.

3. The soil classification for topsoil tested by the Owner or Michigan State University Soil Testing Laboratory shall be a sandy loam with soil particles within the following percentages: 40-60% sand (2.0-.05 mm particle size) 20-30% silt (0.05-0.002 mm particle size) 20-30% clay (less than 0.002 mm particle size).

4. No topsoil shall be delivered in a frozen or muddy condition.

5. Required topsoil depth in lawn areas is four (4) inches.

C. Lawn Mulch

1. Hay or straw shall not be allowed for mulch.

D. Grass Seed

1. General: Provide grass seed which is:

   a. Free from noxious weed seeds, and recleaned.

   b. Delivered to the Project Site in sealed containers with dealer's guaranteed analysis.

2. Grass seed shall be fresh, clean, new crop seed composed of the following varieties mixed in the proportion by weight shown and testing the minimum percentages of purity and germination:

Kind of Seed	Proportion by Weight	Minimum Purity	Minimum Germination
Kentucky Bluegrass	50 to 70%	90%	85%
Pennfine Per. Ryegrass	30 to 50%	95%	85%

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

A. Maintain established rough grades in the areas to be topsoiled. Maintenance shall include necessary repairs to previously graded areas, removal of debris and surplus subgrade material prior to placing topsoil.

3.2 PLACING TOPSOIL

A. Uniformly distribute topsoil on lawn areas in quantity sufficient to provide full depth of soil after compaction and finish grading indicated on the drawings, but not less than 4 inches. Topsoil shall be spread, cultivated, lightly compacted to prevent future settlement, dragged and graded to finished grade.

B. Topsoil, when placed, shall be dry enough so as not to puddle or bind. Do not place topsoil when the subgrade is frozen, excessively wet, extremely dry or in a condition otherwise detrimental to proper grading or lawn seeding preparation.

3.3 FINISHED GRADES

A. Finished grades shall slope to drain, be free of depressions or other irregularities after thorough settlement and compaction of soil, and shall be uniform in slope between grading controls and the elevations indicated.
B. Finished grade for lawn areas shall meet existing grades at contract limits and be 1/2 inch below top of curbs, walks or paving.

3.4 PREPARATION OF GRASS BED

A. Immediately before seeding, scarify, loosen, float and drag topsoil as necessary to bring it to the proper condition. Remove foreign matter larger than 1 inch in diameter.
B. If the prepared grass bed is eroded or compacted by rainfall prior to fertilizing, rework the surface as specified.
C. Uniformly distribute the 10-10-10 fertilizer by approved mechanical means at the rate of 15 pounds per 1000 sq. ft., and incorporate into the soil to a depth of four (4) inches. Do not apply fertilizer when there is the possibility of rain before lawn areas can be seeded.

3.5 SEEDING TURF GRASS

A. Preparation:
    1. Mix mulch and binder in tank. Mulch at 2,000 pounds per acre. Enviro-Fiber, Eco Fiber products or Owner approved equal.
    2. Binder: Environ-ment Binder 150 pounds per acre. Add slowly to tank to avoid clumping.

3. Seeding rate: 275 pounds per acre.

3.6 MULCH BLANKET

A. Provide MDOT high velocity blanket on slopes 1v:2h or steeper. Install in accordance with MDOT specification section 814.

3.7 REPAIR EXISTING LAWNS

A. Repair existing lawns damaged by vehicles and construction operations under the contract. Repair shall include finish grading, fertilizing, hydroseeding and high velocity mulch blanket as required to match existing grade and lawn.

3.8 LAWN MAINTENANCE AND PROTECTION

A. Watering – As needed.
B. Damage to seeded areas resulting from erosion, and non-growth areas shall be repaired, one time only, by Contractor.
C. New lawn protection - Protect turf areas by erecting temporary fences, barriers, signs and similar protection as necessary to prevent trampling and any trespassing.
D. Existing lawn protection - Protect existing lawns from construction damage at all times.

3.9 FINAL INSPECTION AND ACCEPTANCE

A. Final inspection of lawns by Owner's Representative will be made upon completion of the installation.
B. Final acceptance of the work by the Owner's Representative will relieve the contracting of further maintenance.

3.10 GUARANTEE

A. Include an allowance to water the reseeded area as necessary to facilitate re-vegetation of the Project Site such that the end product is a level, grassed parcel of property.
B. Maintain seeded areas until grass is well established and accepted by Owner. The Contractor shall reseed bare areas for up to one year following acceptance.

END OF SECTION 32 92 00

SECTION 33 29 00
WELL ABANDONMENT

PART 1 GENERAL

1.1 SCOPE OF WORK

A. The work to be done shall consist of furnishing all labor, materials, and equipment for the complete and satisfactory plugging of an abandoned or existing water well. The Contractor shall comply with all federal, state, and local laws and ordinances relating to performances of the work. All work is to be done in accordance with the Michigan Water Well Construction and Pump Installation Code, Act 368, PA of 1978, Part 127, known as the Ground Water Quality Control Act and administrative rules adopted thereunder and specifications described herein.

B. It should be realized that in some cases it may be impractical to plug a well due to its location, such as a well located under a structure. In the event the Contractor determines the well to be inaccessible for plugging, the Contractor shall notify the Owner and the Michigan Department of Environmental Quality (MDEQ) before proceeding. The decision as to whether a casing must be removed as part of the abandonment procedure will be made by the MDEQ.

1.2 REGISTRATION

A. The work shall be completed by a water well drilling contractor registered in the State of Michigan, who shall comply with all applicable rules, regulations, and guidelines published by the State of Michigan regarding the performance of the work.

1.3 PROTECTION OF PROPERTY

A. The Contractor and/or Subcontractor shall properly protect all surface and subsurface structures and surrounding areas from damage which may result from the methods employed in performing the work. The Contractor shall be responsible for any damages to such structures resulting from the Contractor's or Subcontractor's operations. Damaged property shall be repaired or replaced, at the Contractor's expense, to a condition which is equal to that which existed prior to damage. The Owner shall have the right to approve these restoration measures.

1.4 NOTIFICATION OF UTILITIES

A. The Contractor shall comply with Act 53, PA of 1974, by notifying the public utilities of the proposed drilling or excavating at least 72 hours prior to the commencement of such activities by contacting MISS DIG (800-482-7171).

1.5 CLEANUP

A. The Contractor shall provide all material and labor to maintain the Project Site in an orderly condition, which is conducive to good workmanship. The Contractor

shall keep the Project Site free from accumulation of waste materials, rubbish, and other debris resulting from the work.

PART 2 PRODUCTS

2.1 UTILITIES FOR CONSTRUCTION

A. Unless otherwise provided for in these specifications, the Contractor shall furnish his own source of electricity, fuel and water required to perform the work, and shall bear the cost of these services.

2.2 EXCAVATION OF WELL

A. The Contractor shall provide equipment, personnel, and facilities necessary to handle and load materials for transport.

2.3 CASING REMOVAL

A. The Contractor shall provide equipment, personnel, and facilities necessary to handle and load materials for transport.

2.4 WELL PLUGGING

A. The Contractor shall provide equipment, personnel, and facilities necessary to handle and load materials for transport.

2.5 PLUGGING MATERIAL

A. Neat cement slurry - a mixture of one bag (94 pounds) of Type I Portland cement to not more than 6 gallons of clean water as defined in R325.1603a(1), Rule 103a(1), definitions; N,O.

B. Concrete slurry - a mixture of one bag (94 pounds) of Type I Portland cement to an equal amount of dry sand to not more than 6 gallons of clean water as defined in R325.1602(3), Rule 102(3), definitions; C, D.

C. Coarse grade bentonite - crushed high swelling sodium bentonite. The minimum particle size shall be 1/4 inch in diameter as defined in R325.1601a(4), Rule 101a(4), definitions; B.

D. Bentonite pellets - a pre-formed compressed tablet made of high swelling sodium bentonite. The minimum pellet size shall be 1/4 inch in diameter as defined in R325.1601a(6), Rule 101a(6), definitions; B.

2.6 GROUTS AND GROUT FLUID ADDITIVES

A. 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 unless approved by the Owner and the MDEQ. MDEQ approval shall be based upon compliance with the following specifications as applicable:

1. ANSI/NSF standards 60 or 61 (additives).
2. ASTM specification C 150 (cements), or section 10 of the API specification 10 and section 4 of the API specification 13A (bentonites) in accordance with

R325.1640(2)(a) and (b), Rule 140(2)(a) and (b), certification of water well components.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. The Contractor shall maintain a complete and accurate record of the plugging operation. 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 Owner and the MDEQ. The completed well plugging report shall be submitted to the MDEQ within 60 days of completion of the plugging operation. Final approval and payment to the Contractor shall be withheld by the Owner until the plugging report has been submitted and approved by the MDEQ. Water necessary for preparing plugging slurries shall be obtained by the Contractor, at the Contractor's expense, from a source satisfactory to the Owner, and shall be conveyed in a clean, sanitary container.

3.2 REMOVAL OF WELL MATERIALS

A. The Contractor shall remove all materials from the well which may hinder its proper abandonment, if possible, in accordance with R325.1662(2), Rule 162(2), abandoned wells and dry holes; removal of debris and obstructions. This shall include pumping equipment, drop pipe, and packer jets. Electrical disconnections of the pumping equipment shall be made in accordance with applicable electrical codes.

3.3 CASING REMOVAL

A. The casing shall be removed by applying a lifting force to the casing with the drilling rig, jacks, jarring head, trip casing spear or a combination of the above methods. The plugging material shall be placed into the well after the screen is removed and prior to the removal of the casing so that the plugging material is in contact with the formation materials as the casing is being pulled.

3.4 CASING TERMINATION

A. Where removal of the casing is not required, as determined by the MDEQ, or where the casing cannot be removed, the Contractor shall cut the casing off at least 12 inches below grade. For wells located in a building, upon completion of well plugging, the Contractor shall fill the casing to floor level with no less than 12 inches of cement. Casing shall be cut off not more than 3 inches from floor level. For wells terminating in a well pit, casing shall be cut off not less than twelve inches below the grade established when the pit is filled. Where the well cannot be located, or is determined by the MDEQ to be inaccessible, the service line shall be cut off not more than 3 inches from the point of building or structure entry, and shall be filled with no less than 12 inches of cement.

3.5 PLUGGING PROCEDURES

A. Wells shall be plugged in accordance with the CODE, R325.1663, Rule 163, Abandoned wells and dry holes; plugging method and R325.1664, abandonment of wells; plugging materials.

B. Slurry mixture and pumping - When neat cement slurry or concrete slurry is used, it shall be placed into the 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 well is filled. The tremie pipe shall be submerged in the slurry at all times during slurry placement. Equipment used for pumping cement grout shall be of the diaphragm, piston, gear, or helical type. The Contractor shall be responsible for determining the amount of slurry required to plug the well. Appendix IV of the Michigan Water Well Construction and Pump Installation Code, Act 368, PA of 1978, Part 127, known as the Ground Water Quality Control Act and administrative rules, may be used as a guide.

C. Cement slurries - Neat cement or concrete slurries shall be prepared by adding cement or sand-and-cement to the calculated required volume of clean water. The material shall be mixed in the mixing equipment until it is adequately mixed and free of lumps, then immediately pumped into the well without delay.

D. Coarse grade or pelletized bentonite - Where coarse grade or pelletized bentonite is used, it shall be poured slowly into the top of the well to avoid bridging of material in the casing or borehole. Pellets or coarse bentonite shall be placed into the well by pouring at an even rate not to exceed five (5) minutes per fifty (50) pounds of materials. Fine bentonite particles which accumulate in the bottom of the shipping container shall not be used. A work pipe or weighted drop string shall be placed in the well and the height of accumulated plugging material measured after each 50 pounds of bentonite is placed in the well. If measurement indicates that bridging of plugging material has occurred, a work pipe, drill rods, or other weighted device shall be run into the casing to break the bridge. The plugging operation shall continue until the bentonite appears at the surface. Water shall then be placed into the casing to promote expansion of the bentonite above the static water level.

3.6 DISPOSAL OF WATER

A. The Contractor shall make all provisions necessary for conveying any water encountered in performing the work away from adjacent structures, and shall take measures necessary to prevent erosion and/or flooding of the Project Site and adjacent properties. The Contractor shall also prevent discharge water from flowing over any adjacent wells or sewage disposal system.

3.7 WELL PIT ABANDONMENT

A. The Contractor shall upon completion of well plugging, abandon a well pit by filling with clean soil to the established grade level.

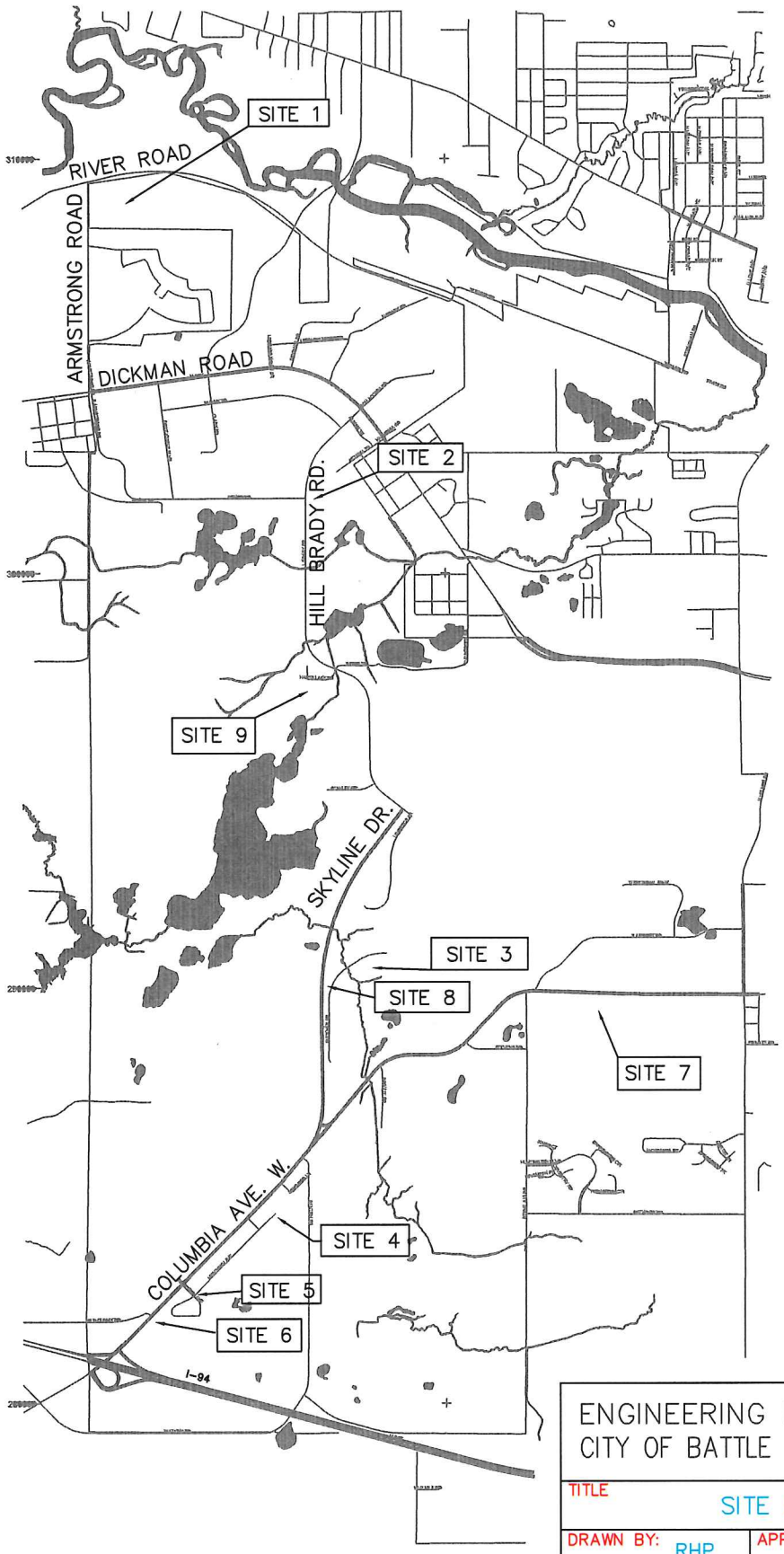
3.8 SITE RESTORATION

A. The Contractor shall restore the site to a condition that reasonably approaches the original condition of the Project Site. Trenches, pits, and voids shall be restored in accordance with SECTION 31 23 00 EXCAVATION, BACKFILL, AND COMPACTION and SECTION 32 92 00 TURFS AND LAWNS. Final site restoration is subject to the review and approval of the Owner.

B. Upon completion of the work, the Contractor shall remove from the premises all materials, debris, tools, and machinery. Plugging material, grease, or other materials, which have accumulated on structures or around the premises, shall be removed from the Project Site.

END OF SECTION 33 29 00

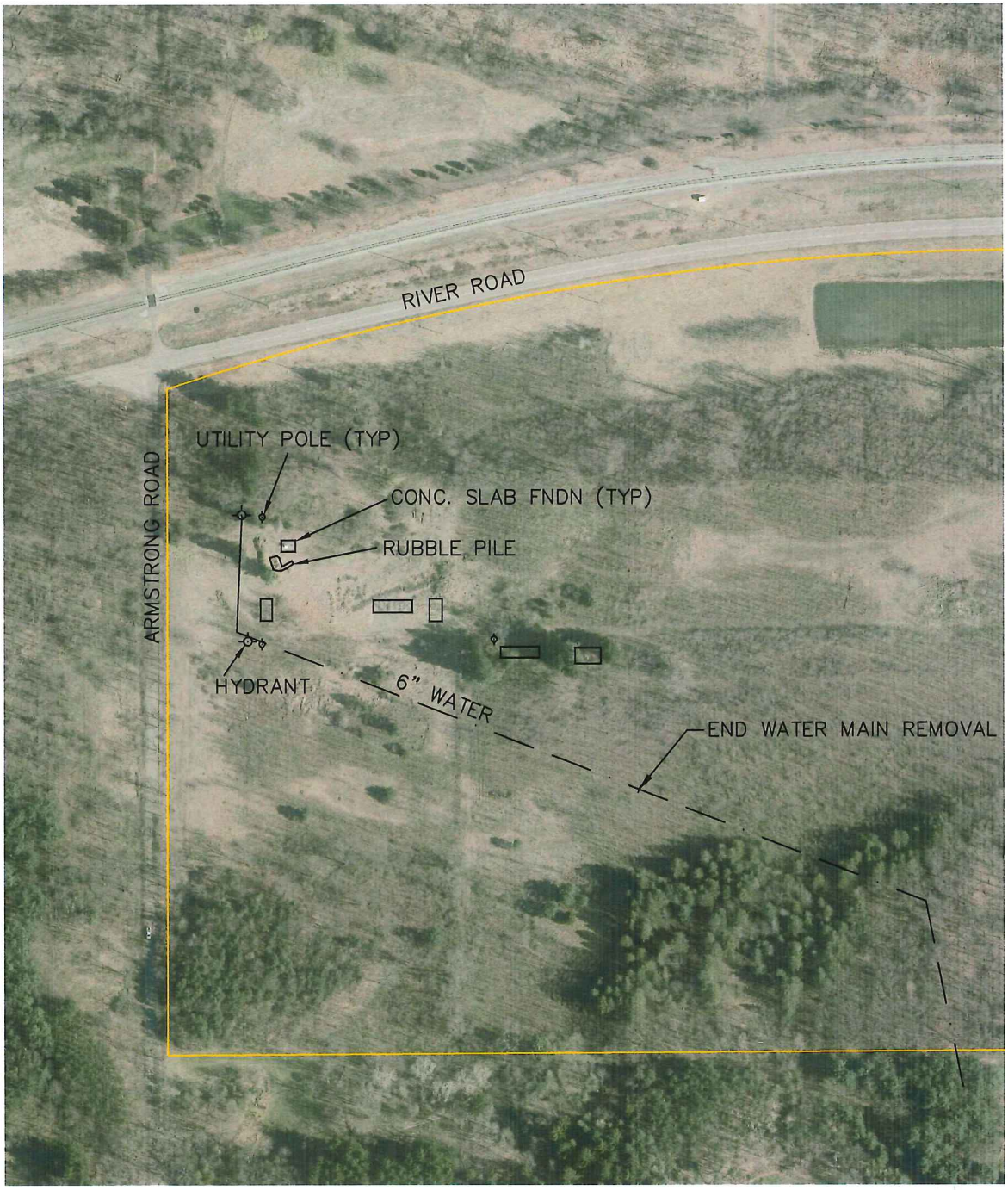
ATTACHMENT B – SKETCHES & SITE LOCATION MAPS



ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: SITE LOCATION MAP			
DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017	
SCALE: NA	SHEET OF SHEETS	DWG. NO.	

SITE 1: ARMSTRONG\RIVER ROAD



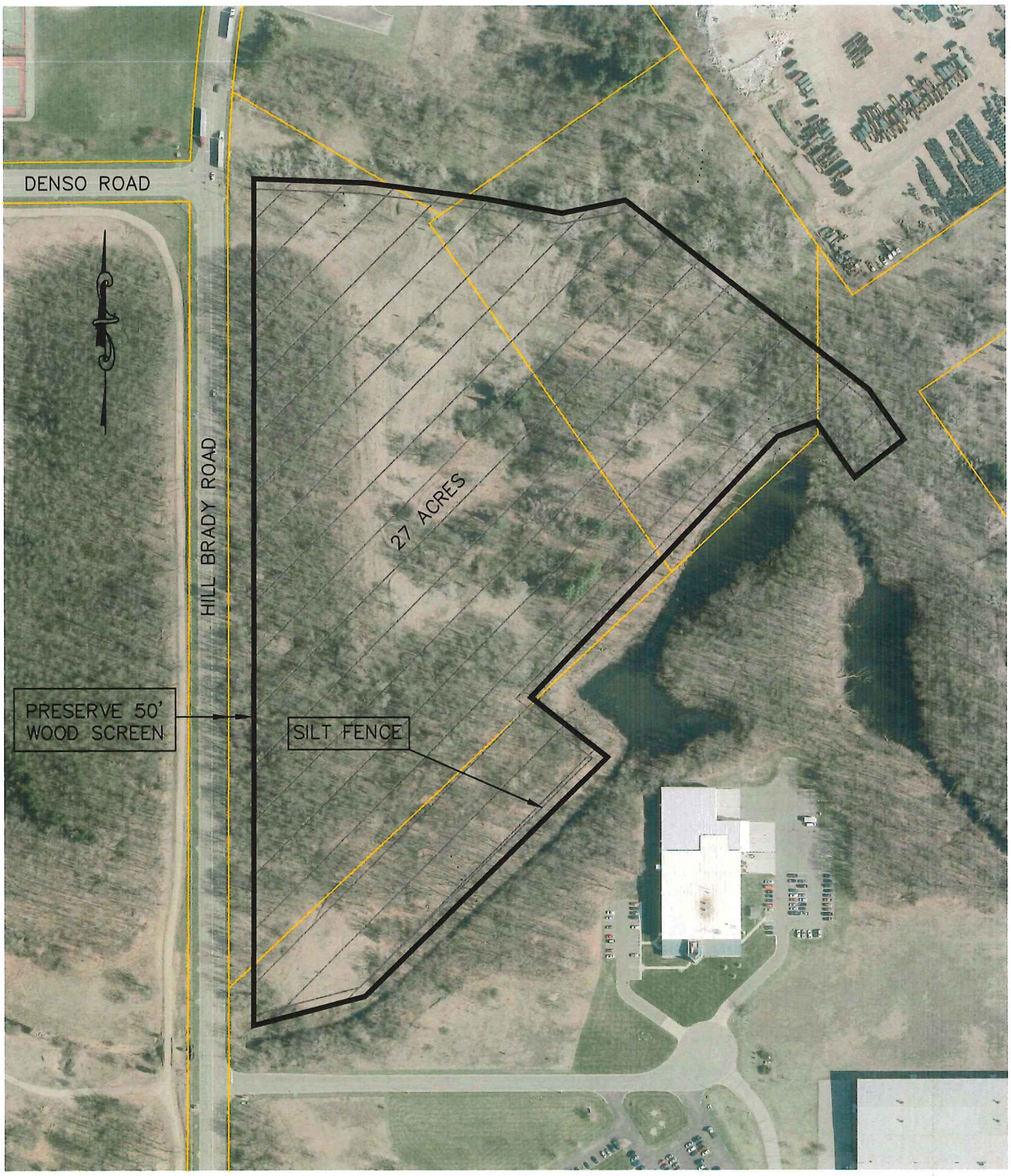
MASONRY & CONCRETE STRUC. REM.	400 CYD.
UTILITY POLE, REM.	3 EA.
HYDRANT, REM.	2 EA.
WATER MAIN, REM.	1000 FT.
HMA SURFACE, REM.	3200 SYD.

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=300'	SHEET 1 OF 9 SHEETS	DWG. NO.

SITE 2: LOT 54



CLEARING & GRUBBING	27 ACRES
EROSION CONTROL, SILT FENCE	3550 FT
TURF RESTORATION	130,680 SYD.

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=300'	SHEET 2 OF 9 SHEETS	DWG. NO.

SITE 3: SYSTEX CORP. 300 BUCKNER

CLEARING & GRUBBING	9 ACRES
EROSION CONTROL, SILT FENCE	1250 FT
TURF RESTORATION	43,560 SYD.

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=300'	SHEET 3 OF 9 SHEETS	DWG. NO.

SITE 4: 145 NEWTOWN AVE.

SEWER, REM LESS THAN 24"	115 FT
TREE, REM. 6"–18"	1 EA.
SIDEWALK, REM.	301 SYD.
BUILDING DEMO.	2683 SFT
WELL ABANDONMENT	1 EA.
TURF RESTORATION	599 SYD

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=200'	SHEET 4 OF 9 SHEETS	DWG. NO.

SITE 5: 207 ROBERTSON AVE.

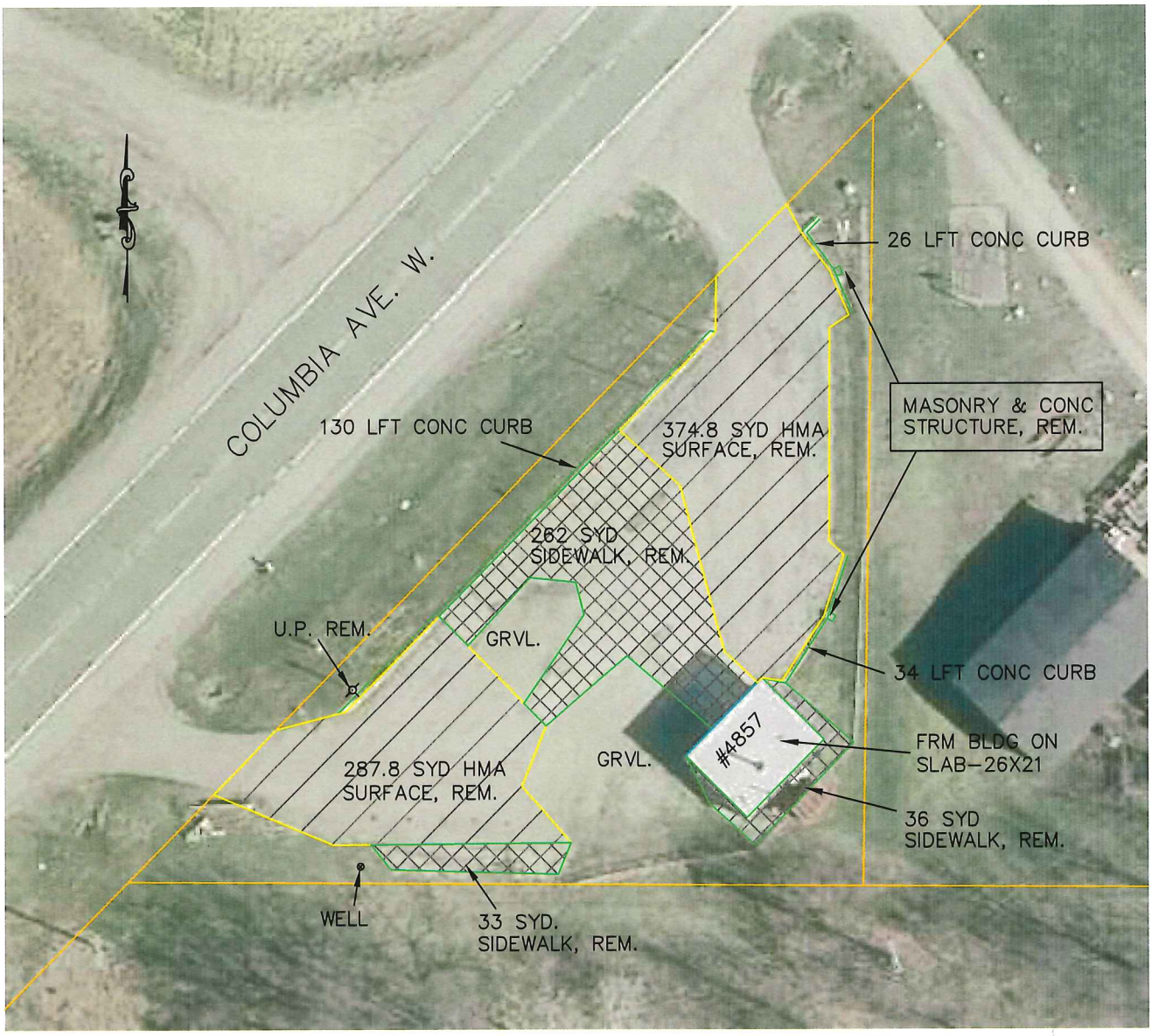
SEWER, REM LESS THAN 24"	75 FT
SIDEWALK, REM.	28 SYD.
BUILDING DEMO.	1743 SFT
WELL ABANDONMENT	1 EA.
TURF RESTORATION	215 SYD

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12/2017
SCALE: 1"=40'	SHEET 5 OF 9 SHEETS	DWG. NO.

SITE 6: 4857 W. COLUMBIA AVE.



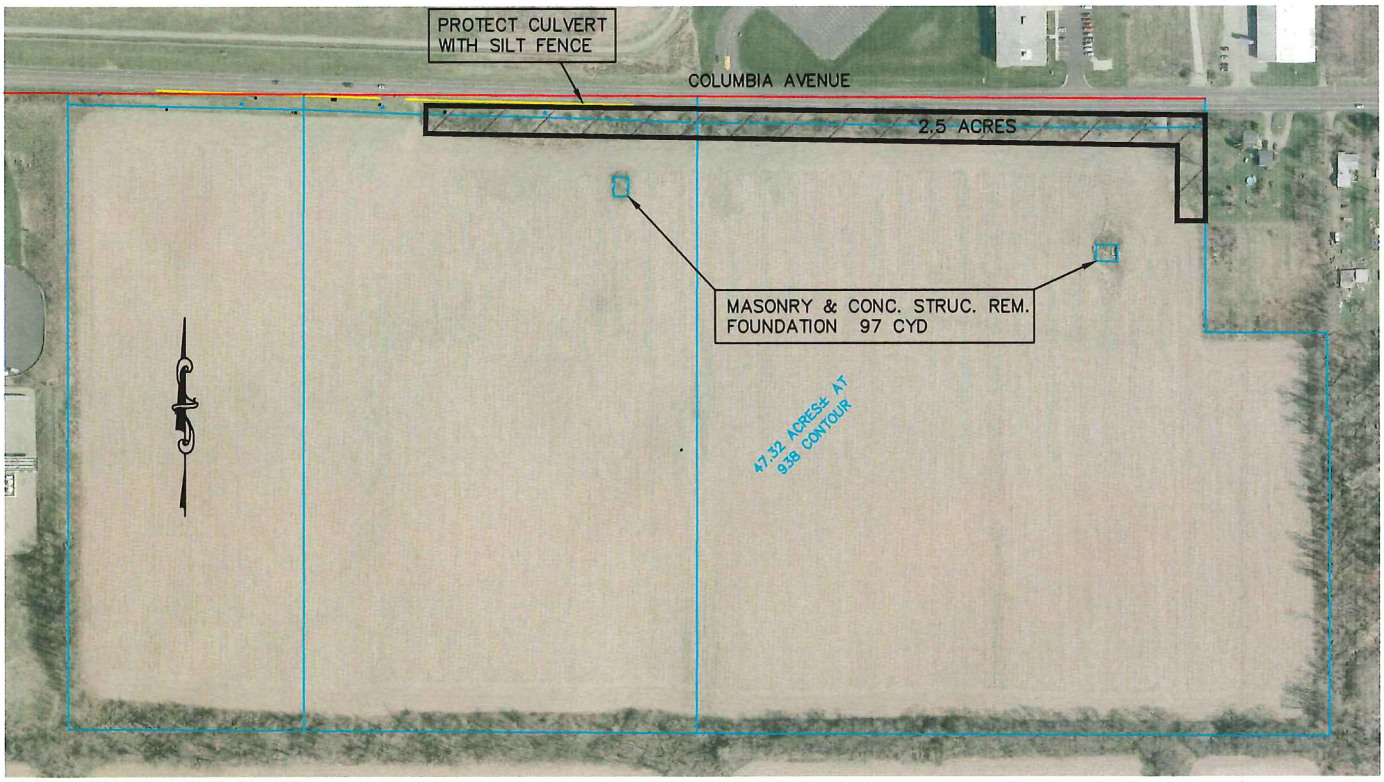
REM. UTILITY POLE	1 EA
MASONRY & CONCRETE STRUC. REM.	2.0 CYD
CURB & GUTTER, REM.	190 FT
HMA SURFACE, REM.	663 SYD
SIDEWALK, REM.	332 SYD
WELL ABANDONMENT	1 EA.
BUILDING DEMO.	530 SFT
TURF RESTORATION	1020 SYD

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12/2017
SCALE: 1"=40'	SHEET 6 OF 9 SHEETS	DWG. NO.

SITE 7: W. COLUMBIA AVE. 0066-00-470-0



CLEARING & GRUBBING	2.5 ACRES
MASONRY & CONC. STRUC. REM.	97 CYD
EROSION CONTROL, SILT FENCE	20 FT
TURF RESTORATION	12,500 SYD.

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=400'	SHEET 7 OF 9 SHEETS	DWG. NO.

SITE 8: SKYLINE\BUCKNER

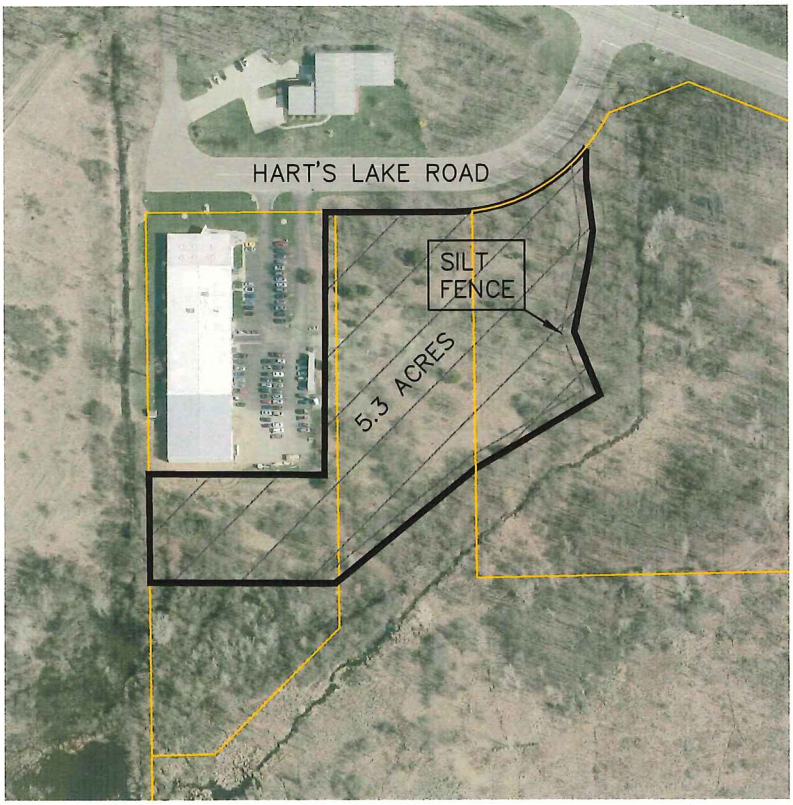
CLEARING & GRUBBING	3.5 ACRE
EROSION CONTROL, SILT FENCE	550 FT
TURF RESTORATION	16,940 SYD

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=300'	SHEET 8 OF 9 SHEETS	DWG. NO.

SITE 9: NEXTHERMAL



CLEARING & GRUBBING	5.3 ACRES
EROSION CONTROL, SILT FENCE	850 FT
TURF RESTORATION	25,800 SYD

ENGINEERING DEPARTMENT
CITY OF BATTLE CREEK, MICHIGAN

TITLE: BCU CLEARING/DEMOLITION PROPERTIES

DRAWN BY: RHP	APPROVED: KRT	DATE: 12\2017
SCALE: 1"=300'	SHEET 9 OF 9 SHEETS	DWG. NO.