PROJECT MANUAL

SPECIFICATIONS FOR DEMOLITION AND SOIL REMEDIATION

Former Elkem Carbide (Auditor's Parcel D)
365 Carbide Lane
Keokuk, Iowa 52632

Prepared For:
City of Keokuk
501 Main Street
Keokuk, Iowa 52632

Prepared By:

5930 Grand Avenue
West Des Moines, Iowa 50266

March 5, 2026
ADDENDUM 1 March 23, 2026

CERTIFICATIONS PAGE

PROJECT MANUAL

for

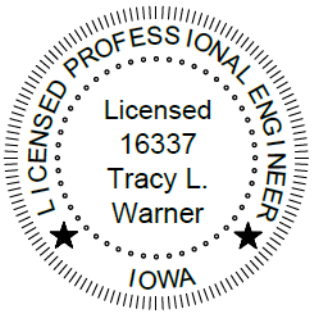
Specifications for Demolition and Site Remediation

Former Elkem Carbide (Auditor's Parcel D)

365 Carbide Lane

Keokuk, Iowa 52632

Prepared By:



I HEARBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

TRACY L. WARNER, P.E. IOWA LICENSE NO. 16337

SIGNATURE 3/5/26 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2027

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL PAGES

TABLE OF CONTENTS

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

APPENDICES

NOTICE TO BIDDERS AND NOTICE OF PUBLIC HEARING

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

Time and Place for Filing Sealed Proposals: **Sealed bids for the work consisting of demolition and soil remediation as stated below must be filed before 10:00 A.M. on April 8, 2026, in the Office of the City Clerk, City of Keokuk, 501 Main Street, Keokuk, Iowa 52632**. Bidder must provide acknowledgement of addenda, if issued. The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder and delivered at or before the time and at the place provided in the Notice and Instruction to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered prior to the time for opening bids, along with the appropriate bid security sealed in the separate envelope identified as Bid Security, if required, and attached to the outside of the bid proposal envelope. Any proposal received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered.

Time and Place Sealed Proposals Will be Opened and Considered: Sealed proposals will be opened, and bids tabulated at 10:00 A.M. on **April 8, 2026**, in the Office of the City Clerk, City of Keokuk, 501 Main Street, Keokuk, Iowa 52632. Bid Proposals will be officially "Received" and acted upon **April 16, 2026**, at 5:30 pm at the City of Keokuk City Council Meeting, City Council Chambers at City Hall. The City of Keokuk reserves the right to reject any and all bids. Notice to proceed is expected to be on **April 17, 2026**.

Time for Commencement and Completion of Work: **Work on the improvement shall commence following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026. The Contractor shall have the project complete by December 23, 2026**.

Bid Security. Each bidder shall accompany its bid with bid security, as defined in Section 26.8 of the Iowa Code in the amount equal to 5 percent of the total amount of the bid.

Pre-Bid Meeting: **A MANDATORY pre-bid meeting and walkthrough is scheduled for 10:00 A.M. on Tuesday, March 17, 2026, at 365 Carbide Lane, Keokuk, Iowa. Bidders are invited to ask questions and tour the facility. Bidders will be required to sign an attendance form at the meeting.**

Questions: **All questions must be submitted via email to Tracy Warner at twarner@eocene.com by noon on Thursday, March 19, 2026**. Responses to any submitted questions will be via email by noon on Friday, March 20, 2026.

Contract Documents: The Project Manual governing the demolition, soil remediation, and site restoration which has been made a part of this Notice and the proposed contract are on file with the City of Keokuk, Office of the City Clerk at 501 Main Street, Keokuk, Iowa 52632, phone 319-524-2050. The Project Manual can be obtained from Eocene Environmental Group at 5930 Grand Avenue, West Des Moines, Iowa 50266; phone 515-858-7665 or via email from twarner@eocene.com. Complete digital project bidding documents are available for free by entering Quest project #10095199 on the website's Project Search page. Please contact

QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, viewing, downloading, and working with this digital project information. The Project Manual can also be found on the City of Keokuk's website under Current Bid Projects: https://cityofkeokuk.org/bids-rfps-and-quotes/ and Iowa League of Cities website under Classifieds: https://iowaleague.org/classifieds/.

Public Hearing: A public hearing will be held by the City of Keokuk on the proposed contract documents (plans, specifications and form of contract), estimated cost for the improvement, and award of contract at its meeting at 5:30 P.M. on Thursday, **April 16, 2026**, at City Hall, 501 Main Street, Keokuk, Iowa 52632.

Sales Tax Exemption Certificates. The bidder shall not include sales tax in the bid. The City of Keokuk will distribute tax exemption certificates and authorization letters to the Contractor and all subcontractors who are identified. The Contractor and subcontractor may make copies of the tax exemption certificates and provide a copy to each supplier providing construction materials eligible for exemption. These tax exemption certificates and authorization letters are applicable only for this specific project under the Contract.

Payment. The City of Keokuk will provide payment of the base bid amount from Bid Forms Proposal Attachment Part C upon successful completion of each bid line item minus a 3% retainage. The 3% retainage will be paid once final documentation has been provided. Pay requests shall be submitted to the City's Consultant. Requests for retainage payment will be considered by the City Council at their regular meeting on the second or fourth Thursday of each month. If the request for payment is approved by City Council, retainage payment will be made on the 2nd Friday following that Council meeting.

When 50% of the original contract amount has been completed, 100% of the contract price for mobilization will be paid.

Davis Bacon Wages. For the purposes of this contract, being an EPA funded project, the City of Keokuk has determined that all construction, alteration and repair activity involving the remediation of hazardous substances is subject to Davis Bacon Prevailing Wage Term and Condition. Davis Bacon information is included in Appendix 4 of the Project Manual.

PROJECT DESCRIPTION: This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

This Notice is given by authority of the City of Keokuk

_____

Celeste El Anfaoui, City Clerk

*****END OF SECTION*****

INSTRUCTIONS TO BIDDERS

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

The work comprising the above referenced project shall be constructed in accordance with the SUDAS Standard Specifications, 2026 Edition and as further modified by supplemental specifications and special provision included in the contract documents. The terms used in the contract version of the documents are defined in said Standard Specifications. Contractors must read the Project Manual in its entirety and comply with the requirements. Please be certain that all documents have been completed properly, as failure to complete and sign all documents and to comply with the requirements listing within the Project Manual can cause your bid not to be read.

I. BID SECURITY

A. The bid security must be in the minimum amount of 5% of the total bid amount including all add alternates (do not deduct the amount of alternates). Bid security shall be in the form of a cashier's check, a certified check drawn on a FDIC insured bank in Iowa or drawn on a FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the Jurisdiction.

B. The bid bond must be submitted on the enclosed Bid Bond form as no other bid bond forms are acceptable. All signatures on the bid bond must be original signatures in ink; facsimile (fax) of any signature on the bid bond is not acceptable.

C. Bid security other than said bid bond shall be in accordance with Chapter 26 of the Iowa Code.

II. PRE-BID ACCESS TO THE SITE

A. A MANDATORY pre-bid meeting will be held on site, 365 Carbide Lane, Keokuk, Iowa at 10:00 A.M. on Tuesday, March 17, 2026.

III. SUBMISSION OF THE PROPOSAL AND IDENTITY OF BIDDER

A. **Sealed bids for the work consisting of demolition and soil remediation must be filed before 10:00 A.M. on <u>April 8, 2026</u>, in the Office of the City Clerk, City of Keokuk, 501 Main Street, Keokuk, IA 52632**. Bidder must provide acknowledgement of addenda, if issued. The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder and delivered at or before the time and at the place provided in the Notice and Instruction to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered prior to the time for opening bids, along with the appropriate bid security sealed in the separate envelope identified as Bid Security, if required, and attached to the outside of the bid proposal envelope. Any proposal

received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered.

B. The following documents shall be completed, signed and returned in the Proposal envelope. The bid cannot be read if any of these documents are omitted from the Proposal envelope.

PROPOSAL – Complete each of the following parts:

- Part A – Scope;
- Part B – Acknowledgment of Addenda, if any have been issued;
- Part C – Bid Items, Quantities and Prices
- Part D – General
- Part E – Non-Collusion Affidavit;
- Part F – Identity of Bidder;

Sign the proposal. The signature on the proposal and all proposal attachments must be an original signature in ink signed by the same individual who is the Company Owner or an authorized Officer of the Company; copies, facsimiles, or electronic signatures will not be accepted.

The following documents must be submitted as printed. No alterations, additions, or deletions are permitted. If the Bidder notes a requirement in the contract documents which the Bidder believes will require a conditioned or unsolicited alternate bid, the Bidder must immediately notify Tracy Warner, of Eocene Environmental Group in writing. Eocene Environmental Group will issue any necessary interpretation by an addendum for the City of Keokuk.

IV. PROSECUTION AND PROGRESS OF THE WORK

A. The work is located in the City of Keokuk.

Work on the improvement shall commence following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026. The Contractor shall have the project complete by December 23, 2026.

B. Each successful bidder will be required to furnish a corporate surety bond in an amount equal to 100% of its contract price. Said bond shall be issued by a responsible surety approved by the City of Keokuk and shall guarantee the faithful performance of the contract and the terms and conditions therein contained and shall guarantee the prompt payment of all material and labor, and protect and save harmless the City of Keokuk from claims and damages of any kind caused by the operations of the contract and shall also guarantee the maintenance of the improvement caused by failures in materials and construction for a period of two years from and after acceptance of the contract.

C. The City of Keokuk, in acordance with Title VI of the Civil Rights Act of 1964, as Amended, hereby notifies all bidders that it will affirmatively insure that in any contract

entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

D. Once Contractor has mobilized onto the site to begin construction and has disturbed soil, Contractor shall remain on-site making consistent cleanup process until Project is substantially complete with site seeded and stabilized, as determined by the City or City's Consultant.

V. PREFERENCE OF PRODUCTS AND LABOR

A. By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

VI. TAXES

A. Sales Tax Exemption Certificates. The bidder shall not include sales tax in the bid. The City of Keokuk will distribute tax exemption certificates and authorization letters to the Contractor and all subcontractors who are identified. The Contractor and subcontractor may make copies of the tax exemption certificates and provide a copy to each supplier providing construction materials. These tax exemption certificates and authorization letters are applicable only for this specific project under the Contract.

B. Income Tax:

1. Successful Bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law.

2. If successful bidder is a non-Iowa partnership, individual or association, they shall furnish evidence prior to execution of contract that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

VII. DAVIS BACON WAGES

A. For the purposes of this contract, the City of Keokuk has determined that all demolition, construction, alteration and repair activity involving the remediation of hazardous substances is subject to Davis Bacon Prevailing Wage Term and Condition. Davis Bacon information is included in Appendix 4 of the Project Manual.

******END OF SECTION******

BID FORMS

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

PROPOSAL: PART A – SCOPE

The City of Keokuk, hereinafter called "CITY", has need for a permitted contractor to complete the work comprising the below referenced improvement. The undersigned Bidder hereby proposes to complete the work as specified in the contract documents, at the prices hereinafter provided in Part C of the Proposal, for the following described improvements:

PROJECT DESCRIPTION: This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

PROPOSAL: PART B – ACKNOWLEDGMENT OF ADDENDA

The Bidder hereby acknowledges that all addenda become a part of the contract documents when issued, and that each such addendum has been received and utilized in the preparation of this bid. The Bidder hereby acknowledges receipt of the following addenda by inserting the number of each addendum in the blanks below:

ADDENDUM NUMBER _____ ADDENDUM NUMBER _____

ADDENDUM NUMBER _____ ADDENDUM NUMBER _____

PROPOSAL: PART C – BID ITEMS AND QUANTITIES

This is an **ITEMIZED PRICE CONTRACT**. The bidder must provide a Unit Bid Price for each item shown for the Demolition and Soil Remediation for the identified project site. The Quantities shown on the Proposal Attachment: Part C – Bid Items and Quantities are approximate only but are considered sufficiently adequate for the purpose of comparing bids. The CITY shall use the Total Price and any selected alternates for comparison of bids.

PROPOSAL: PART D – GENERAL

The Bidder hereby acknowledges that the CITY, in advertising for bids for this project, reserves the right to:

1. Reject any or all bids. Award of the contract, if any, to be to the lowest responsive, responsible bidder; and
2. Reject any or all alternates in determining the items to be included in the contract. Designation of the lowest responsive, responsible bidder to be based on the base bid and selected alternatives, if any; and
3. Make such alterations in the contract documents or in the proposal quantities as it determines necessary in accordance with the contract documents after execution of the contract. Such alterations shall not be considered a waiver of any conditions of the contract documents, and shall not invalidate any of the provisions thereof; and

The Bidder hereby agrees to:

1. **Commence work following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026.**
2. **The Contractor shall have the project complete by December 23, 2026**.

PROPOSAL: PART E – NON-COLLUSION AFFIDAVIT

The Bidder hereby certifies:

1. That this proposal is not affected by, contingent on, or dependent on any other proposal submitted for any improvement with CITY; and
2. That no individual employed by the Bidder has employed any person to solicit or procure the work on this project, nor will any employee of the Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this project; and
3. That no part of the bid price received by the Bidder was or will be paid to any person, corporation, firm, association, or other organization for soliciting the bid, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the project were in the regular course of their duties for the Bidder; and
4. That this proposal is genuine and not collusive or sham; that the Bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to submit a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person, to fix the bid price of the Bidder or of any other bidder, and that all statements in this proposal are true; and
5. That the individual(s) executing this proposal have the authority to execute this proposal on behalf of the Bidder.

PROPOSAL: PART F – IDENTITY OF BIDDER

The bidder shall indicate whether the bid is Submitted by a/an:

☐ Individual,
Sole Proprietorship

☐ Partnership

☐ Corporation

☐ Limited Liability Company

☐ Joint-venture; all parties must join-in and execute all documents

☐ Other

_____
Bidder

_____
Signature

By _____
Name (Print/Type)

_____
Title

_____
Street Address

_____
City, State, Zip Code

_____
Telephone Number

Type or print the name and title of the company's owner, president, CEO, etc. if a different person than entered above

_____
Name

_____
Title

NOTE: The signature on this proposal must be an original signature in ink by the same individual who is the Company Owner or authorized Officer of the Copy; copies, facsimiles, or electronic signatures will not be accepted.

NOTE: IT IS UNDERSTOOD THAT THE QUANTITIES DOCUMENTED WITHIN THIS PROJECT MANUAL AND PROJECT PLANS ARE ESTIMATED FOR THE PURPOSE OF THIS BID. ALL QUANTITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SUBMISSION OF BID.

PROPOSAL ATTACHMENT: PART C – BID ITEMS, QUANTITIES, AND PRICES

This is an **ITEMIZED PRICE CONTRACT**. The bidder must provide a Unit Bid Price for each item shown for the Demolition and Soil Remediation for the identified project site. The Quantities shown on the Proposal Attachment: Part C – Bid Items and Quantities are approximate only but are considered sufficiently adequate for the purpose of comparing bids. The CITY shall use the Total Price and any selected alternates for comparison of bids.

Materials and quantities are approximate only but are considered adequate for the purpose of this Project Manual. The Contractor is responsible for verification of all materials and quantities listed below. No additions to the contract will be allowed for additional discovered for lump sum bid items. If additional amounts greater than ten percent (10%) are identified, Contractor is to stop work and notify the CITY and/or CITY'S consultant immediately. No compensation without prior authorization by CITY and/or CITY'S consultant will be approved. All materials and quantities are subject to revision by the CITY.

BASE BID (AUDITOR'S PARCEL D) (ADDENDUM 1):

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	BASE BID PRICE
1	MOBILIZATION	LS	1		
2	CONSTRUCTION SURVEY	LS	1		
3	CLEARING AND GRUBBING	AC	1.25		
4	DEMOLITION	LS	1		
5	REMOVE EXISTING FENCE AND GATES	LF	700		
6	DISPOSAL OF CONSTRUCTION WASTE, DEBRIS AND HOUSEHOLD HAZARDOUS MATERIALS	LS	1		
7	PAVEMENT REMOVAL, ANY DEPTH	SY	7,050		
8	COVER UTILITY STRUCTURE WITH STEEL PLATE	EA	9		
9	REMOVE CONCRETE STRUCTURE	EA	3		
10	REMOVAL OF CONTAMINATED SOILS AND IMPORT CLEAN SOIL AND RESPREAD (SOURCE PROVIDED)	TON	21,560		
11	TOPSOIL, OFF-SITE	CY	2,375		
12	PROTECT EXISTING MONITORING WELLS	EA	16		
13	STABLILIZED CONSTRUCTION EXIT	SY	222		

14	WATTLES, STRAW	LF	175		
15	SILT FENCE	LF	2,300		
16	SEEDING, FERTILIZING, AND MULCHING (NO MOW, LOW MAINTENANCE FINE FESCUE BLEND)	AC	9.44		
17	SEEDING WARRANTY	LS	1		
18	INSTALL 6 FT SECURITY FENCE WITH VEHICULAR GATE, COMMERCIAL / INDUSTRIAL GALVANIZED CHAINLINK, ALONG CARBIDE LANE	LF	1,200		
				TOTAL AMOUNT BID	$

NOTE: IT IS UNDERSTOOD THAT THE QUANTITIES DOCUMENTED WITHIN THIS PROJECT MANUAL ARE ESTIMATED FOR THE PURPOSE OF THIS BID. ALL QUANTITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SUBMISSION OF BID.

_____
Bidder Name

ADD ALTERNATES FOR CONSIDERATION TO AWARD:

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	ADD ALT BID PRICE
A	ADDITIONAL REMOVAL OF CONTAMINATED SOILS AND IMPORT CLEAN SOIL AND RESPREAD (SOURCE PROVIDED) BEYOND BASE BID QUANTITY	TON	500		
B	REMOVE RAILROAD SPUR	LF	1,193		
C	REMOVE GRAVEL AND PAVEMENT DRIVE AND REPLACE WITH CLEAN GRAVEL	SY	2,300		

NOTE: IT IS UNDERSTOOD THAT THE QUANTITIES DOCUMENTED WITHIN THIS PROJECT MANUAL ARE ESTIMATED FOR THE PURPOSE OF THIS BID. ALL QUANTITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SUBMISSION OF BID.

_____
Bidder Name

CONTRACTING FORMS AND SUPPLEMENTS

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

THIS CONTRACT, made and entered into at _____ this _____day of_____, by and between the City of Keokuk (CITY), and _____ _____, hereinafter called the "Contractor".

WITNESSETH:

The Contractor hereby agrees to complete the work comprising of demolition and soil remediation in accordance with the SUDAS Standard Specifications, 2026 Edition and as further modified by supplemental specifications and special provision included in the contract documents, which are officially on file with the City of Keokuk, Office of the City Clerk at 501 Main Street, Keokuk, Iowa 52632. This contract includes all such contract documents. The Contractor further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law, for the time required in said contract documents, after its acceptance by CITY.

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices shown on the Contract Attachment: Bid Items and Quantities which were proposed by the Contractor in its proposal submitted in accordance with the Notice to Bidders and Notice of Public Hearing for the following described improvements:

PROJECT DESCRIPTION:
This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

The Contractor agrees to perform said work for and in consideration of CITY'S payment of the bid amount of _____dollars ($).

Work on the improvement shall commence following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026. The Contractor shall have the project complete by December 23, 2026.

IN WITNESS WHEREOF, the Parties hereto have executed this instrument, in triplicate on the date first shown written.

CITY

By _____
Mark Smidt, Mayor

(Seal)
ATTEST:

_____
Celeste El Anfaoui, City Clerk

CONTRACTOR:

_____

By _____
Contractor's Contact Name
Contractor's Title

_____

_____
Street Address

_____
City, State, Zip Code

_____
Telephone

NOTICE TO PROCEED

Jurisdiction: City of Keokuk, Iowa

Contractor:

Effective Date of Contract:

Engineer:

Project: 365 Carbide Lane (Auditor's Parcel D) Demolition and Soil Remediation

TO CONTRACTOR:

Jurisdiction hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ _____, 20_____.

Work on the improvement shall commence following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026. The Contractor shall have the project complete by December 23, 2026.

Before starting any work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Jurisdiction: City of Keokuk Iowa

_____
Authorized Signature

By: Mark Smidt

Title: Mayor

Date Issued:

Copy: Community Development Director

BOND FORMS FOR

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

KNOW ALL BY THESE PRESENTS:

That we, _____ as Principal, and _____, as Surety, are held and firmly bound unto the City of Keokuk, Iowa, as Obliged (hereinafter referred to as the "Jurisdiction"), in the penal sum of _____ dollars ($_____), or _____ % of the amount bid in lawful money of the United States, for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the Jurisdiction a certain proposal, in a separate envelope, and hereby made a part hereof, to enter into a contract in writing, for the following described improvements;

FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
DEMOLITION AND SOIL REMEDIATION

This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

The Surety hereby stipulates and agrees that the obligations of said Surety and its bond shall be in

no way impaired or affected by any extension of the time within which the Jurisdiction may accept such bid or execute such Contract; and said Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Lee County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or Principal to enforce the provisions of the bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all damages, costs, and attorney fees incurred by enforcing any of the provisions of this Bond. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against Surety for any amount guaranteed hereunder whether action is brought against Principal or whether Principal is joined in any such action or actions or not.

NOW, THEREFORE, if said proposal by the Principal be accepted, and the Principal shall enter into a contract with the Jurisdiction in accordance with the terms of such proposal, including the provision of insurance and of a bond as may be specified in the contract documents, with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void; otherwise, the Principal shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____ 20____.

Surety:	**PRINCIPAL:**
_____	_____
Surety Company	Bidder
By: _____	By: _____
Signature Attorney-in-Fact/Officer	Signature
_____	_____
Printed Name of Attorney-in-Fact/Officer	Printed Name
_____	_____
Company Name	Title
_____	_____
Company Address	Address
_____	_____
City, State, Zip Code	City, State, Zip Code
_____	_____
Company Telephone Number	Telephone Number

NOTE:

1. All signatures on this Bond must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted.
2. This Bond must be sealed with the Surety's raised, embossing seal.
3. The Certificate or Power of Attorney accompanying this Bond must be valid on its face and sealed with the Surety's raised, embossing seal.

The name and signature of the Surety's Attorney-in-Fact/Officer entered on this Bond must be exactly as listed on the Certificate or Power of Attorney accompanying this Bond.

SURETY BOND NO. _____

PERFORMANCE, PAYMENT, AND MAINTENANCE BOND FOR

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

KNOW ALL BY THESE PRESENTS:

That we, _____, as Principal (hereinafter the "Contractor" or "Principal"), and _____, as Surety, are held and firmly bound unto the City of Keokuk, Iowa, as Obliged (hereinafter referred to as the "Jurisdiction"), and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of _____

_____

dollars ($_____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly or severally, firmly by these presents.

The conditions of the above obligations are such that whereas said Contractor entered into a contract with the Jurisdiction bearing date the _____ day of _____, 20_____ (hereinafter the "Contract"), wherein said Contractor undertakes and agrees to construct the following described improvements:

FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
DEMOLITION AND SOIL REMEDIATION

This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

The Contractor agrees to faithfully perform all the terms and requirements of said Contract within the time therein specified, in a good and workmanlike manner, and in accordance with the Contract Documents*.*

It is expressly understood and agreed by the Contractor and Surety in this Bond that the following provisions are a part of this Bond and are binding upon said Contractor and Surety, to-wit:

1. PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill, and abide by each and every covenant, condition, and part of said Contract and Contract Documents, by reference made a part hereof, for the above referenced improvements, and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor's default of failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.

2. PAYMENT: The Contractor and the Surety on this Bond hereby agreed to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract on account of which this Bond is given, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment, and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Chapter 573 of the Iowa Code, which by this reference is made a part hereof as though fully set out herein.

3. MAINTENANCE: The Contractor and the Surety on this Bond hereby agree, at their own expense:

    a. To remedy any and all defects that may develop in or result from work to be performed under the Contract within the period of two year(s) from the date of acceptance of the work under the Contract, by reason of defects in workmanship or materials used in construction of said work;

    b. To keep all work in continuous good repair; and

    c. To pay the Jurisdiction's reasonable costs of monitoring and inspection to assure that any defects are remedied, and to repay the Jurisdiction all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

4. GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

    a. To consent without notice to any extension of time to the Contractor in which to perform the Contract;

    b. To consent without notice to any change in the Contract or Contract Documents, which thereby increases the total contract price and the penal sum of this Bond, provided that all such changes do not, in the aggregate, involve an increase of more than 20% of the total contract price, and that this Bond shall then be released as to such excess increase; and

    c. To consent without notice that this Bond shall remain in full force and effect until the Contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and the liquidated damage penalty is being charged against the Contractor.

    d. That no provision of this Bond or of any other contract shall be valid that limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.

    e. That as used herein, the phrase “all outlay and expense” is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits, and overhead where applicable. Accordingly, “all outlay and expense” would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorneys’ fees (including overhead expenses of the Jurisdiction’s staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor’s failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

In the event the Jurisdiction incurs any “outlay and expense” in defending itself against any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety’s obligation under this Bond shall not exceed 125% of the penal sum of this Bond.

In the event that any actions or proceedings are initiated regarding this Bond, the parties agree that the venue thereof shall be Lee County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Contractor and the Surety agree, jointly and severally, to pay the Jurisdiction

all outlay and expense incurred therefor by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers, and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether Contractor is joined in any such action(s) or not.

NOW THEREFORE, the condition of this obligation is such that if said Principal shall faithfully perform all the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

When a word, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.

Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Witness our hands, in triplicate, this _____ day of _____, 20____.

Surety Countersigned By:

PRINCIPAL:

_____
Signature of Agent

_____
Contractor

By: _____
Signature

_____
Printed Name of Agent

_____
Title

SURETY:

_____
Company Name

_____
Company Address

_____
Surety Company

_____
City, State, Zip Code

By: _____
Signature Attorney-in-Fact Officer

_____
Company Telephone Number

_____
Printed Name of Attorney-in-Fact Officer

_____
Company Name

_____
Company Address

FORM APPROVED BY:

_____
City, State, Zip Code

_____
Attorney for Jurisdiction

_____
Company Telephone Number

NOTE:

1. All signatures on this Bond must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted.
2. This Bond must be sealed with the Surety's raised, embossing seal.
3. The Certificate or Power of Attorney accompanying this Bond must be valid on its face and sealed with the Surety's raised, embossing seal.

The name and signature of the Surety's Attorney-in-Fact/Officer entered on this Bond must be exactly as listed on the Certificate or Power of Attorney accompanying this Bond.

SECTION 00 73 19
HEALTH AND SAFETY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Health and Safety requirements.

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the lump sum contract price.

1.03 DESCRIPTION

A. Contractor is responsible for implementation and enforcement of safe work practices including, but not limited to, personnel exposure to refuse, hazardous materials; use of trenching, sheeting, and shoring; scaffolding; materials handling; operation of equipment; and safety of public during progress of work.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Contractor shall plan for and ensure personnel comply with basic provisions of OSHA Safety and Health Standards (29 CFR 1910), and General Construction Standards (29 CFR 1926) as appropriate.
2. Comply with applicable laws and regulations of any public body having jurisdiction for safety of persons or property.

1.05 OPERATIONS AND EQUIPMENT SAFETY

A. Contractor is responsible for initiating, maintaining, and supervising safety precautions and programs in connection with work. Contractor shall take necessary precautions for safety of employees on Project site and other persons and organizations who may be affected by Project.

B. Contractor's duties and responsibilities for safety in connection with work shall continue until such time as work is complete as applicable under the Contract.

1.06 HEALTH AND SAFETY

A. Contractor is responsible for implementation and enforcement of health and safety requirements, as well as compliance with all applicable state and federal laws, and will take necessary precautions and provide protection for following.

1. Personnel working on or visiting Project site, irrespective of employer.
2. Work and materials or equipment to be incorporated in work area on- or off-site.
3. Other property at or adjacent to Project site.
4. Public exposed to job related operations or potential release of toxic or hazardous materials.

B. Contractor shall prepare site specific health and safety plan (HASP) following the requirements of 29-CFR 1910.120, and 29-CFR 1910.146. Such plan shall include appropriate measures for confined space entry as project conditions warrant. If Contractor does not have capability to prepare HASP, Contractor shall employ consultants with appropriate capabilities. Contractor is solely responsible for adequacy of HASP's preparation, monitoring, management, and enforcement. At minimum, Contractor's HASP shall address the following.

1. Site description and history.
2. Project activities, including coordination with other Contractors.
3. Hazard evaluation.
4. On-site safety responsibilities.
5. Dust control measures.
6. Work zones.
7. Personnel training.
8. Medical monitoring.
9. Atmospheric monitoring.
10. Personal protection, clothing, and equipment.
11. Decontamination procedures.
12. Emergency procedures.

1.07 CONSULTANT'S RESPONSIBILITIES

A. When Consultant is required to be present on Project site to perform consulting services, Consultant will comply with Contractor's safety plans, programs, and procedures.

B. If Consultant determines Contractor's safety plans, programs, and procedures do not provide adequate protection for Consultant, Consultant may direct its employees to leave Project site or implement additional safeguards for Consultant's employees. If taken, these actions will be in furtherance of Consultant's responsibility to its own employees only, and Consultant will not assume responsibility for protection of any other persons affected by work.

C. If Consultant observes situations which appear to have potential for immediate and serious injury to persons, Consultant may warn persons who appear to be affected by such situations and shall advise Contractor and CITY of its actions. Such warnings, if issued, shall be given based on general humanitarian concerns, and Consultant will not, by issuance of any such warning, assume responsibility to issue future warnings or any general responsibility for protection of persons affected by work.

1.08 SUBMITTALS

A. Submit copies of Health and Safety Plan (HASP) to CITY and Consultant within 10 business days after Notice to Award. Work on-site shall not proceed until HASP has been submitted.

1. Submittal of Contractor's HASP to Consultant is to inform Consultant and CITY so they can comply with HASP during performance of their on-site responsibilities as described in Contract Documents.
2. Submittal of Contractor's HASP shall neither impose on Consultant or CITY responsibility for adequacy of HASP nor relieve Contractor from full responsibility, therefore.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 01 00 00

GENERAL REQUIREMENTS

DEMOLITION AND SOIL REMEDIATION
FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IOWA 52632

1. DEFINITION AND INTENT
2. GENERAL PROVISIONS AND COVENANTS
3. WORK REQUIRED
4. SUSTAINABLE AND GREEN REMEDIATION MEASURES
5. PLANS AND SPECIFICATIONS
6. CONSTRUCTION FACILITIES
7. SUBMITTALS
8. STANDARDS AND CODES
9. DEFINITIONS
10. RIGHT-OF-WAYS
11. EMPLOYMENT PRACTICES
12. WORK HOURS
13. DUST ABATEMENT
14. QUANTITIES
15. MAINTENANCE BOND AND WARRANTY PERIODS (if required)
16. MEASUREMENT AND PAYMENT
17. INSURANCE REQUIREMENTS
18. INCIDENTAL CONTRACT ITEMS
19. EXISTING UTILITIES
20. PROJECT SUPERVISION
21. COORDINATION WITH OTHERS
22. CONSTRUCTION LIMITS
23. CONSTRUCTION SCHEDULE
24. DISPOSAL
25. TEMPORARY FENCES
26. RESPONSIBILITY OF CONTRACTOR
27. DAVIS-BACON WAGES
28. BUILD AMERICA, BUY AMERICAN

1. DEFINITION AND INTENT

A. The Technical Specifications that apply to the materials and construction practices for this project are defined as follows:

1. Omissions of words or phrases such as “the Contractor shall”, “in accordance with”, “shall be”, “as noted on the Plans”, “according to the Plans”, “a”, “an”, “the” and “all” are unintentional; supply omitted words or phrases by inference.
2. “CITY” or “Jurisdiction” shall mean the City of Keokuk (CITY), or contracting agent.
3. “Person” shall mean any individual, partnership, limited partnership, joint venture, society, association, joint stock company, corporation, limited liability company, estate, receiver, trustee, assignee, or referee, whether appointed by a court or otherwise, and any combination of individuals.
4. “Consultant”: Eocene Environmental Group, Inc. 5930 Grand Avenue, West Des Moines, Iowa 50266, (515) 858-7665, and shall mean CITY’S designated agent.
5. The intent of the Technical Specifications is to describe the demolition, soil remediation, and site restoration work desired, performance requirements, and standards of materials and site restoration.
6. “Work” shall mean the work to be done and the equipment, supplies, and materials to be furnished under the contract unless some other meaning is indicated by the context.
7. “Or equal” shall follow manufacturers names used to establish standards and, if not stated, is implied.

2. GENERAL PROVISIONS AND COVENANTS

A. Contractor must comply with all applicable federal, state, and local regulations.

B. Cooperate with regulatory agencies to ensure safe and lawful execution of work.

C. Procedures outlined herein are not intended to fully cover all special remediation procedures but are offered as an aid to the Contractor in planning work.

D. Cooperate with the CITY to minimize inconvenience to property owners, other jurisdictions and motorists and to prevent delays in demolition, soil remediation, and site restoration and interruption to continuous operation of utility services and site access.

E. The Contractor is expected to provide adequate personnel and equipment to perform work within specified time of demolition, soil remediation, and site restoration.

F. Install and maintain fencing as required by OSHA, for site security or as needed to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage during construction operations. The fence shall be maintained for the duration of the Work. Coordination for fencing shall take place between contractors for Plat 1 and Auditor’s Parcel D.

G. Contractor may not demobilize from the Property once Work begins causing disturbance of soil until completion and acceptance of Work.

3. WORK REQUIRED

A. Work under this contract includes all materials, equipment, transportation, labor, disposal and associated work for the demolition, soil remediation, and site restoration project.

B. This project consists of one contract for all Work described.

4. SUSTAINABLE AND GREEN REMEDIATION MEASURES

A. This project is funded through an EPA Brownfields Cleanup Grant which looks to minimize energy use, reduce waste, conserve water, and utilize lower-impact technologies throughout the cleanup process.

B. The contractor shall maximize, to a reasonable extent possible, reduce, reuse and recycle of materials as part of this demolition and cleanup project so to save landfill space.

C. To minimize air pollutants and greenhouse gas emissions, the contractor should minimize transportation trips and idling time with equipment.

D. Contractor may provide on-site concrete crushing and reuse of the clean aggregate-sized materials along gravel drive areas, as approved by the City's Consultant.

E. ASTM E2893-25 Standard Guidance for Greener Cleanups.

F. EPA's Principles for Greener Cleanups.

5. PLANS AND SPECIFICATIONS

A. Upon request, the Consultant will furnish one set of the Project Manual to the Contractor after award of the contract.

B. Follow all addendums, updates and revisions issued during the Project.

6. CONSTRUCTION FACILITIES

A. Provide telephone numbers where Contractor's representative can be reached during workdays and on nights and weekends in event of emergency.

B. Power, gas, sanitary sewer and water are disconnected and must be supplied by the Contractor, if needed.

C. Provide and maintain suitable sanitary facilities for demolition, soil remediation, and site restoration personnel for duration of Work; remove upon completion of Work.

D. Do not store demolition and soil remediation equipment, employee's vehicles, or materials on streets open to traffic. Location for storage of equipment by Contractors is subject to approval of CITY.

E. The contractor shall provide suitable storage facilities necessary for proper storage of materials and equipment.

F. The Contractor will be required to make arrangements for all services required during the demolition, soil remediation, and site restoration period and pay for such services at no additional cost to the CITY.

7. SUBMITTALS

A. Provide demolition and soil remediation schedule showing dates of starting and completing various portions of Work. Demolition can begin after the 10-day notification period has expired, no later than June 1, 2026 and must be completed on/by December 23, 2026.

B. Include all other submittals:

1. Copy of a completed and submitted Iowa DNR 10-Day Notification Form. Electronic Form to be submitted through Iowa DNR website within 10 business days after Notice of award.
2. Waste Manifests (no later than one (1) week after completion date).
3. Certificate of Insurance (within 10 business days after Notice of Award).
4. Payment and Performance Bond (within 10 business days after Notice of Award).
5. Daily field reports (Monday following each work week).
6. Sign-in logs (Monday following each work week).
7. Davis-Bacon Payroll certifications for Contractor and subcontractor(s) (within one week following each week of Work).

8. STANDARDS AND CODES

A. Construct improvements with best present-day abatement practices and equipment.

B. Comply with OSHA worker safety.

C. Comply with EPA and Iowa DNR for regulations for hazardous material handling and disposal.

D. Adhere to Iowa Statewide Urban Design and Specifications 2026 Edition.

E. Conform with and test in accordance with applicable sections of the following standards and codes.

1. Title 29 Code of Federal Regulations Section 1910.134, General Industry Standard for Respiratory Protection.
2. Title 29 Code of Federal Regulations Section 1910.2, Access to Employee Exposure and Medical Records.
3. Title 29 Code of Federal Regulations Section 1910.1200, Hazard Communication Rule.
4. Title 40 Code of Federal Regulations Part 61 Subpart A and Subpart M (revised Subpart B), National Emissions Standard for Hazardous Air Pollutants.
5. Title 49 Code of Federal Regulations Part 171 - 180, Department of Transportation, Transportation of Hazardous Waste.

F. The following standards, regulations, codes and other applicable documents are additional requirements and guidance for Brownfields Cleanup, Soil Remediation, and Transporting projects.

1. United States Federal Government – Code of Federal Regulations (CFR)
2. Environmental Protection Agency (EPA) – Resource Conservation and Recovery Act (RCRA)
3. Environmental Protection Agency (EPA) –Brownfields
4. Iowa Department of Natural Resources: Brownfields Program

5. Iowa Department of Transportation: Transporting

G. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among the requirements or with these Specifications exists, the most stringent requirements shall be utilized.

9. DEFINITIONS

ACCREDITED: Refers to a person or laboratory means that such person or laboratory is accredited in accordance with section 206 of Title II of the Toxic Substance Control Act.

ADDENDA: Written or graphic instruments issued by the CITY prior to the execution of the Contract which modify or interpret the Bidding Documents by addition, deletions, clarifications or corrections.

ACGIH: American Conference of Governmental Industrial Hygienists, 3640 Park 42 Drive, Cincinnati, OH 45241.

AIHA: American Industrial Hygiene Association, 3120 Fairview Park Drive, Suite 360, Falls Church, VA 22042.

ALTERNATE BID: (or add alternate) An amount stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the alternate bid.

AMENDED WATER: Water to which a surfactant has been added.

ANSI: American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, DC 20036.

ASTM: American Society for Testing and Materials, 100 Barr Harbour Drive, PO Box C700, West Conshohocken, PA 19428.

AUTHORIZED VISITOR: The CITY (and any designated representatives) and any representatives of a regulatory or other agency having jurisdiction over the project.

BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base bid.

BID: A complete and properly signed proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.

BIDDER: A person or entity who submits a bid.

BIDDING DOCUMENTS: Include the Instructions to Bidders, the bid form, other sample bidding and contract forms, and the proposed Contract Documents including Addenda issued prior to receipt of bids.

BUILDING OWNER: CITY, or an authorized representative

CITY: City of Keokuk, Iowa

COMPETENT PERSON: Per OSHA Standards, one who is capable of identifying hazards in the workplace and selecting the appropriate control strategy for exposure, who has the authority to take prompt corrective measures to eliminate them.

CONSULTANT: Eocene Environmental Group Inc., 5930 Grand Avenue, West Des Moines, Iowa 50266.

CONTRACTOR: The individual and/or business with the CITY arranges to perform the demolition, soil remediation and site restoration.

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

DISTURBANCE: Contact which releases contaminated particles or debris.

EPA: U.S. Environmental Protection Agency, 401 M Street S.W., Washington, D.C. 20460.

NESHAP: The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).

NIOSH: The National Institute for Occupational Safety and Health, CDC-NIOSH, Building J. N.E. Room 3007, Atlanta, GA 30033.

NIST: National Institute of Standards and Technology.

OSHA: The Occupational Safety and Health Administration, 200 Constitution Avenue, Washington, D.C. 20210.

OWNER'S REPRESENTATIVE or CITY'S CONSULTANT: Eocene Environmental Group, Inc., 5930 Grand Avenue, West Des Moines, Iowa 50266.

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs): A class of chemicals that occur naturally in coal, crude oil, and gasoline.

REMEDIATION: The stripping and removal of contaminated soil from the site to an approved facility, importing and spreading clean soil across areas disturbed prior to topsoil placement and permanently seeding, mulching those areas.

REMOVAL: The equipment and labor involved in excavating infrastructure, demolition of buildings, breaking up and hauling materials designated to be removed from the site.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) METALS: RCRA establishes the framework for a national system of solid waste control, including non-hazardous and hazardous solid waste.

UNIT PRICE: An amount stated in the Bid as a price per unit of measurement for materials or services as described in the Bidding Documents or in the proposed Contract Documents.

WORK AREA: Areas of project as shown on project plans in which demolition, soil remediation, and site restoration actions are to be undertaken under this contract.

10. RIGHT-OF-WAYS

A. Right-of-Way includes the public land area generally containing streets, sidewalks and some utilities. The project location is on public property, as the CITY is the owner of the parcel(s). CITY right-of-way generally lies north of 365 Carbide Lane, Plat 1 project area.

11. EMPLOYMENT PRACTICES

A. Neither the Contractor nor the Contractor's Subcontractors shall employ any person whose physical or mental condition is such that this employment will endanger the health and safety of anyone employed on the Project.

B. The Contractor shall not commit any of the following employment practices and agrees to include the following clauses in any Subcontracts:

   1. To discharge from employment or refuse to hire any individual because of sex, race, color, religion, national origin, sexual orientation, marital status, age, or disability unless such disability is related to job performance of such person or employee.

   2. To discriminate against any individual in terms, conditions, or privileges or employment because of sex, race, color, creed, religion, national origin, sexual orientation, gender identify, age, or disability unless such disability is related to job performance of such person or employee.

12. WORK HOURS

A. The Contractor will be required to limit the Contractor's Work hours on the Project from 7:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise approved by the CITY or Consultant. Contractor to specify work hours to the CITY and Consultant. Notice to work on weekends and Holidays must be presented to the CITY and Consultant at least 48 hours in advance and requires written permission from the CITY.

13. DUST ABATEMENT

A. The Contractor shall make all reasonable efforts to control dust and assure dust does not become a problem. Anytime contaminated soil debris is disturbed, Contractor is required, at a minimum, to mist the area to minimize airborne contaminants and ensure no visible emissions. Contractor should not excessively water the area, causing transport of the contaminants through water runoff. The Consultant reserves the right to stop Contractor's operations whenever dust becomes a problem on the project and direct the Contractor to submit a revised operations plan to solve the dust problem.

14. QUANTITIES

A. The Contractor is to realize some of the quantities on this Project are best estimates and may vary from actual conditions at time of demolition and soil remediation of the Project. Quantities must be regarded as approximate only and are given as a guide to the Bidder and for comparison of Bids. Refer to Iowa SUDAS Division 1 – General Provisions and Covenants, for additional information If additional bid items or quantities greater than 10% are identified, Contractor is to stop Work and notify the CITY or City's Consultant immediately.

15. MAINTENANCE BOND AND WARRANTY PERIODS (IF REQUIRED)

A. The requirements of the Payment, Performance and Maintenance Bond warranty period are modified as follows:

1. To remedy any and all defects that may develop in or result from Work to be performed under the Contract within two years from the date of acceptance of the Work under the Contract, by reason of defects in workmanship or materials used in construction of said work.

16. MEASUREMENT AND PAYMENT

A. Contract unit or lump sum prices are full compensation for furnishing all materials, equipment, tools, transportation, and labor necessary to construct and complete each item of Work as specified. No separate payment will be made for Work included in this project. All additional Work must be in writing as a detailed change order signed by the CITY.

17. INSURANCE REQUIREMENTS

A. The Contractor shall purchase and maintain insurance to protect the Contractor and the Jurisdiction against all hazards herein enumerated throughout the duration of the contract. Said insurance shall be provided by an insurance company or companies, “admitted” or “non-admitted” to do business in the State of Iowa, having an A.M. Best rating of no less than “B+.”

B. Except for workers compensation insurance, the Contractor shall purchase and maintain such insurance as will protect the Contractor and the Jurisdiction as set forth below, which may arise out of or result from the Contractor’s operations under the contract, whether such operations be by the Contractor, its subcontractors or consultants, suppliers, third parties, or the agents, officers, or employees of any of them. In addition, the Contractor shall purchase and maintain workers compensation insurance to cover its employees.

The limits shall be no less than as follows or greater where required by Laws and Regulations:

Commercial General Liability	
General Aggregate Limit	$2,000,000
Products – Completed Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

Workers Compensation	
Bodily Injury by Accident	$1,000,000 (each accident)
Bodily Injury by Disease	$1,000,000 (each accident)
Bodily Injury by Disease	$1,000,000 (policy limit)

Automobile Liability	
Bodily Injury	$1,000,000 (each person)
Bodily Injury	$1,000,000 (each accident)
Property Damage	$1,000,000 (each accident)

Excess or Umbrella Liability	
Each Occurrence	$2,000,000

Aggregate	$2,000,000

18. INCIDENTAL CONTRACT ITEMS

A. The following list includes, but is not limited to, major items that are incidental to the project and will not be paid for as separate bid items. Other items may be designated as incidental under certain bid items.

- Construction staging & phasing
- Coordination and cooperation with affected property owners
- Coordination and cooperation with the CITY
- Coordination and cooperation with other Contractors
- Coordination and cooperation with other projects in the area
- Coordination and cooperation with utility companies
- Dewatering and handling storm water flow during construction
- Dust control measures
- Excavation, verification and protection of existing utilities, not being removed
- Monitoring weather conditions
- Protection of existing trees and plantings not shown as removals
- Protection of existing utility infrastructure not shown as removals
- Removing and reinstalling existing signs
- Removal means and methods of hazardous materials (including slow unmanned elevator operations)
- Shoring and bracing design, construction, and removal
- Temporary safety closures
- Temporary shoring or structural support to preserve stability
- Temporary street closure

19. EXISTING UTILITIES

A. Prior to construction, contact all utility companies and have all utility lines and services located. The Contractor is responsible for exposing utilities in order to confirm their locations ahead of the Work.

B. At all times, Contractor shall conduct operations so that necessary clearances are maintained and said utility facilities are protected. Contractor shall comply with all local, state, and federal or other regulations in performing work near utility facilities.

C. Contractor is solely responsible for damage to utilities on private or public property due to utility disruption.

D. The Contractor shall notify utility company immediately if utility infrastructure is damaged during demolition and soil remediation.

E. Contractor will contact and work with utility companies to relocate utility infrastructure in direct conflict with line and grade of the work during demolition and soil remediation. Support and protect all utilities that are not moved.

F. Protect and maintain services during demolition and soil remediation. Notify CITY and Consultant 48 hours prior to any planned utility service interruptions.

G. If utility Work does occur during the demolition and soil remediation period, Work schedules from the contractor and from the utility companies will be submitted to the Consultant for coordination to obtain mutual acceptable schedules, if possible.

H. No claims for additional compensation or time extension will be allowed to the Contractor for interference or delay caused by utility companies.

20. PROJECT SUPERVISION

A. The Contractor shall be represented in person at the demolition and soil remediation site at all times that operations are proceeding by a qualified supervisor or other designated, qualified representative capable of providing adequate supervision. The supervisor or representative must be duly authorized to receive and execute instructions, notices and written orders from the CITY.

I. Issues that arise during demolition and soil remediation relating to traffic control and staging, etc. are the responsibility of the Contractor.

B. Bi-weekly progress meetings, if specified at the preconstruction meeting, with the Contractor and Consultant will be held at the project site to review the updated project schedule and progress, coordinate activities, resolve conflicts and coordinate the abatement Work. The day and time for this meeting will be set at the preconstruction meeting.

21. COORDINATION WITH OTHERS

A. Cooperate and coordinate demolition and soil remediation with CITY, Consultant, utility companies, affected property Jurisdictions and other contractors working in vicinity of this project.

B. It is the Contractor′s responsibility to schedule and coordinate Work to minimize demolition and soil remediation delays and conflicts.

C. Coordinate with property owners prior to beginning Work that will affect their parcel.

22. CONSTRUCTION LIMITS

A. To the extent possible, confine the construction operations within the property boundary.

B. Do not store equipment, vehicles or materials within the right-of-way of any streets open to traffic or on temporary access roads at any time.

C. Areas disturbed outside of demolition and soil remediation limits shall be restored at the contractor’s expense to the satisfaction of the CITY.

D. Contractor shall park all vehicle, trailers and storage containers in areas approved by the CITY.

23. CONSTRUCTION SCHEDULE

A. The Contractor will prepare and submit to the Consultant for approval a project schedule that will assure the completion of the project within the time specified.

B. Adequate equipment and forces shall be made available by the Contractor to start Work as specified in the Notice to Proceed.

C. Submit demolition and soil remediation schedule at the preconstruction meeting and periodically update it as requested by the Consultant.

D. The Contractor shall be required to meet the final completion date as specified in the written Notice to Proceed.

E. Notify the CITY and property owners at least 48 hours prior to any street closures.

1. Notify all property owners, residential and business, affected by the street closures by written notice placed on the front door. Include the following items in the notice:

a. The street name, location and proposed date of street closure

b. The estimated schedule for completion of Work

c. The estimated date for reopening of the street

d. Procedure for garbage collection, recycling and postal service

24. DISPOSAL

A. Dispose of materials in accordance with applicable laws and ordinances.

1. Burning of brush and other debris is not permitted. Contractor is responsible for selecting disposal site for vegetation removed with clearing and grubbing.

2. Pavement removed as part of this project may be crushed on-site into aggregate-sized pieces and respread along the westernmost gravel drive between pavements near Carbide Lane and the southern property with building remaining as part of this contract. If not crushed on-site, Contractor is responsible for selecting disposal site for disposing of pavement removal materials.

3. Cooperate with all applicable county, state and federal agencies concerning disposal of materials.

4. The CITY has the first right to any excess materials from demolition.

25. TEMPORARY FENCES

A. Contractor to install and maintain fencing as required by OSHA or as needed to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations. The fence must be maintained for the duration of the Work. Keys shall be provided to City and City's Consultant.

26. RESPONSIBILITY OF CONTRACTOR

A. Supervision of the Work.

B. Protection of all property from injury or loss resulting from demolition and soil remediation operations.

C. Replace or repair objects sustaining any such damage, injury or loss to satisfaction of CITY or Consultant.

D. Cooperate with CITY, Consultant, and representatives of utilities in locating utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve the Contractor of responsibility for damage thereto caused by demolition and soil remediation operations. Contractor shall field verify all utility locations.

E. Keep clean up current with demolition and soil remediation operations.

F. Comply with all federal, State of Iowa, and the City of Keokuk, Iowa laws and ordinances.

27. DAVIS-BACON WAGES

A. For the purposes of this contract, the City of Keokuk has determined that all construction, alternation, and repair activity involving the demolition, soil remediation and site restoration is subject to Davis-Bacon Prevailing Wage Term and Condition. Davis-Bacon information is included in Appendix 4.

28. BUILD AMERICA, BUY AMERICAN

A. This project will utilize federal funding, and as such is a federal air project and subject to additional requirements and contract provisions. The Build America, Buy American Act will apply.

END OF SECTION

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 PROJECT DESCRIPTION

A. Project: Former Elkem Carbide (Auditor's Parcel D)
Demolition and Soil Remediation
365 Carbide Lane
Keokuk, Iowa 52632

B. CITY: City of Keokuk
Address: 501 Main Street
Contact: Brian Carroll
Phone: 319-524-2050 ext. 2210
Email: bcarroll@cityofkeokuk.org

Consultant: Eocene Environmental Group Inc.
Contact: Tracy Warner
Address: 5930 Grand Avenue, West Des Moines, Iowa 50266
Phone: 515-858-7665
Email: twarner@eocene.com

C. This project includes demolition, soil remediation and site restoration of the area associated with Auditor's Parcel D on the former Elkem Carbide facility located at 365 Carbide Lane, Keokuk, Iowa 52632. This bid package includes, but is not limited to, clearing and grubbing, demolition of all buildings, foundations, structures, pavement, utility infrastructure, miscellaneous supplies and equipment, excavation and hauling of contaminated soils, importing and spreading clean soils, site restoration to a condition for commercial/industrial redevelopment, and installation of chainlink security fence. Known waste contaminants to be properly disposed of include Resource Conservation and Recovery Act (RCRA) metals and polycyclic aromatic hydrocarbons (PAHs). All materials removed from the property shall be done in accordance with local, state, and federal regulations.

Contractors are required to complete HAZWOPER OSHA courses, being a 40-hour training for foreman and an 8 hour training for in-field workers, prior to project start date for completing cleanup activities.

Access to Auditor's Parcel D is gained through Plat 1 aggregate drive(s). In the case Plat 1 bid contract is awarded to a different contractor than Auditor's Parcel D, contractors shall coordinate transportation logistics and site access.

The City may or may not select to award each of the Add Alternates, based on funding availability. Add Alternates being considered are: removal of railroad spurs and additional excavation and hauling of contaminated soil with importing and spreading clean soils.

1.02 CONTRACTS

A. Perform Work under contract with the CITY. Contractor may subcontract a portion or portions of Work as provided in these specifications to fulfill the terms of the Contract.

Under no circumstances does the subcontracted Work relieve the Contractor from fulfilling the terms of the Contract.

1.03 COMMENCEMENT OF THE WORK

A. The Contractor shall not commence Work nor allow Subcontractors to commence Work until:

1. The Agreement has been fully executed.
2. The CITY has approved the Contractor's Performance and Maintenance and Payment Bonds, if required.
3. The CITY has approved evidence of the Contractor's Liability Insurance and other insurance required to be purchased by the Contractor. A complete description of the policy is required in addition to the CITY being listed as an additional insured. CITY'S Hold Harmless Agreement must be executed prior to contract execution.
4. The CITY has issued a Notice to Proceed.
5. A Pre-Construction meeting has been held between the Contractor, City and City's Consultant.
6. The CITY has the right to postpone demolition and soil remediation or delay the construction schedule as it relates to this project.

1.04 COMPLETION TIME

A. Work on the improvement shall commence following approval of the contract by the City of Keokuk, as stated in the Notice to Proceed, and no later than June 1, 2026. The Contractor shall have the project complete, subject to any extension of time which may be granted by the CITY, by December 23, 2026.

1.05 OWNER OCCUPANCY

A. The CITY retains the right to ownership, occupancy, and directing Work on the project property throughout operations of demolition, soil remediation and site restoration.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. General: Contractor shall have full use of premises for Work operations related to this project, including use of Project site, during the demolition, remediation and restoration period. Contractor's use of premises is limited only by City's Consultant construction oversight and CITY'S right to perform or to retain other contractors on adjacent portions of Carbide property.

B. Use of Site: Do not disturb portions of Project site beyond areas in which the Work is indicated, without prior approval by City or City's Consultant.

C. Driveways and Entrances: Contractor shall secure the site as part of this contract. Included in this project is the contractor's responsibility to construct a fence with access gates along the property extents adjacent to Carbide Lane. Key access shall be granted to City's Consultant, CITY Public Works (Brian Carroll) and only other entities as approved by CITY.

1.07 WORKING HOURS

A. The Contractor's hours of operations are as indicated in the Special Provisions.

B. The Contractor must request to the CITY and Consultant, in writing, 48 hours in advance of any deviation to these hours, such as outside of specified Work hours, weekend, or Holiday Work. The Contractor is responsible for all additional expenses due to weekend or Holiday Work hours. This includes, but is not limited to: CITY'S Consultant, Testing Laboratory personnel, etc. Such additional charges shall be a subsidiary obligation of Contractor. With the exception of additional charges incurred by the Consultant (which the Contractor shall reimburse the CITY for), no extra payment shall be made by CITY on account of such overtime Work.

C. Contractor shall secure the site when not working or working after standard working hours.

1.08 WORK RESTRICTIONS

A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by adjacent owners, tenants, or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify CITY and utility service not less than 48-hours in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without utility service and CITY'S written permission.

B. Haul Routes:

1. Notify CITY of all haul routes to disposal sites. Contaminated soils are arranged to be disposed of at GREAT RIVER REGIONAL WASTE AUTHORITY in Fort Madison. Clean import soil also be hauled from GREAT RIVER REGIONAL WASTE AUTHORITY in Fort Madison. If Contractor chooses to dispose of contaminated soil or import clean soil from a site other than Great River Regional Waste Authority, approval is required by City's Consultant. Import soil from a site other than Great River Regional Waste Authority shall be tested to prove suitable for import onto the site.

2. In accordance with Section 02 81 00 – Transportation and Disposal of Hazardous Materials. Contractor is responsible for obtaining all transportation-related permits.

1.09 WORK SEQUENCE

A. Coordinate demolition, remediation and site restoration schedule and operations with CITY'S Consultant.

1.10 PERMITS, FEES AND NOTICES

A. The Contractor shall secure and pay for all permits and governmental fees, licenses and inspections for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which were legally required at the time bids were received.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Materials Survey.
2. Meetings.
3. Submittals.

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the contract price.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 MATERIALS SURVEY

A. Project is based on known items and quantities as of the time and date of this project manual. The Contractor is to verify all quantities identified within the Project Manual. Costs for additional survey services shall be the responsibility of the Contractor. If Contractor identifies additional quantities, this information shall be immediately brought to the City's Consultant attention.

3.02 PRECONSTRUCTION MEETING

A. CITY or Consultant will schedule a meeting after Notice of Award.

B. Attendance Required:

1. CITY.
2. Consultant.
3. Contractor – the Supervisor overseeing the project must attend.
4. Major Subcontractors.

C. Agenda:

1. Submission of list of Subcontractors, list of recycling, disposal and import sites, schedule of values, and progress schedule.
2. Designation of personnel and contact information for those representing the parties in Contract and the Consultant.

3. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
4. Use of premises by CITY, City's Consultant and Contractor.
5. CITY'S Requirements.
6. Facilities and controls provided by CITY/Contractor.
7. Temporary utilities provided by CITY/Contractor.
8. Security and housekeeping procedures.
9. Scheduling.
10. Procedures for maintaining record documents.

D. Consultant shall record minutes and distribute copies within seven days after meeting to participants, with copies to CITY, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

A. Contractor to schedule and administer meetings throughout progress of the Work on weekly intervals.

B. Contractor to make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within seven days to Consultant, CITY, participants, and those affected by decisions made.

C. Attendance Required: Job superintendent, major Subcontractors and suppliers, CITY, Consultant, as appropriate to agenda topics for each meeting.

D. Agenda:

1. Review minutes of previous meetings.
2. Address public concerns and complaints.
3. Review of Work progress.
4. Field observations, problems, and decisions.
5. Identification of problems which impede planned progress.
6. Review of submittals schedule and status of submittals.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding Work period.
10. Coordination of projected progress.
11. Maintenance of quality and Work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.
14. Schedule for the next meeting.

E. Contractor shall record minutes and distribute copies within seven days after meeting to

participants, with copies to Consultant, CITY, participants, and those affected by decisions made.

3.04 SUBMITTALS

A. Required submittals are specified in individual sections.

3.05 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:

1. Submit the number of copies which the Contractor requires, plus one copy which will be retained by the Consultant.

B. Documents for Information: Submit two copies.

3.06 SUBMITTAL PROCEDURES

A. Transmit each submittal with Contractor's standard submittal form, if provided.

B. Schedule submittals to expedite the Project and deliver. Coordinate submission of related items.

3.07 RE-SUBMITTALS

A. Re-submittals will be handled in the same manner as first submittals. On re-submittals, direct specific attention, in writing on the transmittal letter and on re-submitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the CITY or Consultant, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. Make corrections to any Work done because of this type revision that is not in accordance with the Contract Documents as may be required by the Consultant.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Temporary demolition and soil remediation facilities for Consultant and Contractor including telephone, water, sanitary, security, temporary fencing, parking and field office.
2. Requirements to minimize pollution of air, water, or land, control of noise, and the disposal of solid waste materials.
    a. Solid waste disposal.
    b. Sanitary sewage disposal.
    c. Control of chemical waste.
    d. Control of dust.
    e. Control of noise.
    f. Protection of roadways.
    g. Protection of waterways.

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the contract price.

1.03 QUALITY ASSURANCE

A. Items provided under this section shall be listed and labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
    1. Term “NRTL” shall be as defined in OSHA Regulation 1910.7.
    2. Terms “listed” and “labeled” shall be as defined in National Electrical Code, Article 100.

B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 30 00 – Administrative Requirements.

PART 2 PRODUCTS

2.01 TEMPORARY UTILITIES

A. Contractor shall provide and pay for all electrical power and lighting required for demolition and soil remediation purposes unless otherwise notified by Consultant.

2.02 TEMPORARY TELEPHONE SERVICE

A. A cellular phone shall be acceptable as temporary phone service. Provide telephone number(s) at which responsible representatives of Contractor can be reached evenings, weekends and holidays.

2.03 TEMPORARY WATER SERVICE

A. Contractor shall provide and pay for water service and all water used unless otherwise notified by Consultant.

2.04 TEMPORARY SANITARY FACILITIES

A. Contractor to provide and maintain temporary toilet facilities and enclosures for Contractor's workers, Consultant's personnel, CITY'S personnel and testing firm personnel working at project site. Provide at time of project mobilization and maintain until project completion.

B. Portable toilets with hand sanitizer shall be acceptable. Comply with all applicable codes and regulations. Arrange for regular cleaning and/or replacement of portable toilets.

C. Maintain daily in clean and sanitary condition.

2.05 TEMPORARY FENCE AND GATES

A. Ensure the presence of fencing as required by OSHA, or as needed, to prevent unauthorized entry to demolition and soil remediation areas and to protect existing facilities and adjacent properties from damage from demolition and soil remediation operations. The fence shall be erected before demolition and soil remediation and be maintained for the duration of the Work.

B. Materials shall be sufficiently durable to be effective for duration of construction period.

2.06 FIELD OFFICES AND BUILDINGS

A. If desired by Contractor, erect where designated by Consultant, and maintain in good condition, temporary field office, tool, and storage building(s) for Contractor's use. Buildings are not required and cost is incidental to the project.

1. Tool storage building(s) shall be of ample size to provide space for tools and equipment.
2. Building(s) shall be neat and well-constructed, surfaced with plywood, drop siding, Masonite or other similar material, well painted and void of advertisements.

PART 3 EXECUTION

3.01 GENERAL

A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations. Contractor shall be responsible for any and all fines imposed by any regulatory agency due to the Contractors activities.

3.02 WATER CONTROL

A. Conform to the regulations and requirements of legally authorized surface water management agencies.

B. Protect site from puddling or running water. Provide water barriers as required to protect property from water damage.

C. Water utilized for demolition and soil remediation must be containerized and properly disposed of at a permitted facility unless field filtered in accordance with local, state and federal regulations.

3.03 SOLID WASTE DISPOSAL

A. Contractor Generated:

1. Collect solid waste on a daily basis.
2. Solid waste generated off-site shall not be brought onto or accepted at the site as part of this Contract.
3. Refer to individual specification sections for disposal requirements for other solid waste, debris, demolition and soil remediation.

3.04 CONTROL OF DUST

A. The control of dust shall mean that no demolition and soil remediation activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction.

B. Utilize methods and practices of demolition and soil remediation to eliminate dust in full observance of agency regulations.

C. The Consultant will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to CITY.

3.05 PROTECTION OF AIR QUALITY

A. Minimize air pollution during demolition and soil remediation. It is strongly encouraged to shutdown motorized equipment when not in use.

B. Do not burn trash or vegetation at Project site.

3.06 CONTROL OF NOISE

A. Conduct operations to cause least annoyance to residents in vicinity of Work and comply with applicable local ordinances.

B. Equip compressors, hoists, and other apparatus with mechanical devices, it is necessary to minimize noise and dust. Equip compressors with silencers on intake lines.

C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.

D. Route vehicles carrying soil, debris, or other material over such streets as will cause least annoyance to public and do not operate on public streets outside of times specified in General Requirements, except as approved by City and respective jurisdiction.

3.07 PROTECTION OF ROADWAYS & PARKING AREAS

A. Contractor is responsible for maintenance and restoration of public roads used for hauling of materials and equipment to and from the site.

B. Contractor shall clean debris resulting from operations on the haul roads on a daily basis, or as instructed by the Consultant.

C. The Contractor shall not utilize local storm sewer inlets to wash and remove debris from the haul roads. Any water used in removing debris shall be captured and properly disposed of at Great River Regional Waste Authority in Fort Madison.

D. All hauling operations on- and off-site shall be completed in a manner that prevents deposition of litter and debris on adjacent roadways.

E. Any contaminated soil tracked off site shall be removed and properly disposed of at Great River Regional Waste Authority in Fort Madison.

3.08 SECURITY

A. Contractor must leave the property secured to protect Work, existing facilities, and CITY'S operations from unauthorized entry, vandalism, or theft. CITY is not responsible for vandalism or theft to Contractor's property.

B. Coordinate with CITY'S security program (if available), CITY'S police department, and CITY'S fire department.

C. Contractor shall provide CITY (Brian Carroll, Public Works) and City's Consultant with key(s) to security fence gate(s).

3.09 CLEAN UP

A. Building:

1. Contractor is to remove any debris generated from the demolition and soil remediation on daily basis and may not stockpile job related materials in common areas of the building during the project, unless authorized by the City's Consultant.

B. Soils Remediation:

1. Contractor is responsible for removing all contaminated soil in accordance with local, state, and federal requirements. Contractor shall ensure that contaminated soil does not enter waterways nor sites other than as arranged for proper disposal.

2. If contaminated soil is released off-site, other than as properly disposed, contractor shall notify the City's Consultant immediately and shall take action to mitigate impacts.

3.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Contractor is responsible for removing utilities as part of the demolition, soil remediation, and site restoration project. These utility infrastructure removals include, but are not limited to, electric, gas, water, sanitary, and storm sewer.

B. Remove temporary utilities, equipment, facilities and materials prior to Final Application for Payment inspection.

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

3.11 COMPLETION OF WORK

A. Upon completion of Work, leave area in a clean, natural looking condition with removed structures backfilled, in general two-feet of clean imported soil including 2 inches of clean topsoil, and seeding over all disturbed areas with no-mow, low-maintenance mix.

B. All disturbed areas shall also be stabilized with erosion and sediment control measures.

C. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.

D. All required documentation shall be submitted from Contractor to City's Consultant prior to final quantity consideration for project closeout.

E. Final quantities shall be agreed up between Contractor and City's Consultant.

END OF SECTION

SECTION 02 61 00

REMOVAL AND DISPOSAL OF CONTAMINATED SOILS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1 Requirements for the removal, transportation, and disposal of contaminated soils generated during this project.

2 Applicable standards and guidelines.

B. Related Sections:

1. Section 00 73 19 – Health and Safety Requirements
2. Section 01 50 00 – Temporary Facilities and Controls
3. Section 02 81 00 – Transportation and Disposal of Hazardous Materials
4. Section 09 00 00 – Stormwater Pollution Prevention Plan
5. Section 31 10 00 – Site Clearing
6. Section 31 23 00 – Excavation and Fill

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the unit bid contract price.

1.03 DESCRIPTION

A. For this project, soil has been identified to be contaminated with polycyclic aromatic hydrocarbons (PAHs) and Resource Conservation and Recovery Act (RCRA) metals which will be excavated from specific areas of the site based on previous assessments.

1. Consultant is responsible for confirming the extent of contaminated soil removal for transportation and acceptance at an approved disposal facility.

B. Contractor will provide services for proper removal and disposal of PAH and RCRA metal contaminated soil as present on-site as directed by the Consultant.

C. Great River Regional Waste Authority in Fort Madison has agreed to receive the PAH and RCRA metal contaminated soil.

D. Great River Regional Waste Authority in Fort Madison has agreed to provide clean imported soil. Contractor is responsible for providing excavation and hauling equipment to load, transport, unload, and spread clean imported soils.

E. Contractor must contact Great River Regional Waste Authority in Fort Madison to schedule soil removal.

F. All soil is to be hauled during normal Great River Regional Waste Authority in Fort Madison business hours, unless special approval is granted.

G. Contractor needs to have proof of insurance to Great River Regional Waste Authority in Fort Madison.

H. At Great River Regional Waste Authority in Fort Madison, soil is to be removed from a pre-determined borrow area.

I. At Great River Regional Waste Authority in Fort Madison, upon completion, borrow area is to be left in graded state, with the ability to drain water. If it is left in poor condition, a regrading fee of $165.00 per hour will be charged to reshape the borrow area.

1.04 COMPLIANCE WITH LAWS AND STANDARDS

A. Ensure that all Work is performed in strict compliance with applicable federal, state, county and municipal codes, laws, ordinances, rules or regulations.

B. CITY or Consultant may stop Work in the event that the Contractor fails to comply with the provisions or specifications of any applicable federal, state, or local regulations. Any cost incurred to the Contractor as a result of Work stoppage shall be borne by the Contractor.

1.05 NOTIFICATIONS AND PERMITS

A. Obtain all required permits and submit the property notifications to federal, state, and local regulatory agencies.

1.06 SUBMITTALS

A. Submit a Work plan within ten (10) calendar days of award of the contract. Plan shall provide specific information detailing the proposed methods of removing, transporting, storing, and disposing of the PAH and RCRA metal contaminated soil. Work plan must include proposed transportation route and alternate transportation routes to and from the disposal facility.

B. Copies of required notifications to regulatory agencies.

C. A list of waste disposal facilities that will be utilized by the Contractor, if other than Great River Regional Waste Authority in Fort Madison.

D. Evidence that employees have been instructed of chemical hazards and any other hazardous materials to be used or possibly encountered in the work project.

1. Hazard Communication Standard: 29 CFR 1910.120 and 40 CFR 264.16, 265.16.

E. Evidence that employees have received instruction in respiratory protection and fit testing.

1. OSHA Regulation 29 CFR 1910.134

F. Evidence that supervisors, technicians, or other employees who will monitor work have received or have been certified in competency to manage work.

1. OSHA – 29 CFR 1910.12(e)

G. An emergency plan for situations, including an emergency response team for emergency spill cleanup, medical and fire emergencies, etc.

1. EPA – 40 CFR 264.30, 264.56, 265.30, 265.55
2. OSHA – 29 CFR 1910.120

H. At project closeout, submit copies of all manifests, documentation, notifications, daily work log, any incident reports, waste treatment standards, locations of disposal facilities where wastes were transported to, and any other documents affiliated with the work.

I. Contractor is to document all PAH and RCRA metal contaminated soil disposal at substantial completion. Include the date of removal, quantity by weight and volume, and final destination. Submit all landfill disposal documentation, receipts, invoices, and manifests.

1. Contractor must notify City's Consultant immediately if "Notification of Receipt" of any waste shipment is not received from the disposal facility. Contractor shall undertake whatever actions are necessary to determine status of shipment and remedy situation.

J. Contractor must submit all OSHA Hazardous Waste Operations and Emergency Response (40 CFR 1910.120) training certificates for Contractor personnel and all subcontractors involved in Work associated with PAH and RCRA metal contaminated soil removal prior to beginning Work. Persons completing specific training for hazardous waste operations shall be certified, and documentation of training submitted to the Consultant; those not certified nor with proper experience shall be prohibited from engaging in those operations specified.

K. Contractor must submit a Health and Safety Plan for the site to the Consultant prior to starting PAH and RCRA metal contaminated soil excavation.

1.07 REFERENCE STANDARDS

A. Comply with all applicable federal, state and local laws, codes and ordinances which govern or regulate waste transportation and disposal. Regulations regarding transportation and final disposal of wastes at minimum include but are not limited to the following United States Federal Government – Code of Federal Regulations (CFR):

1. 29 CFR Occupational Safety and Health Standards
2. 49 CFR 387 (46 CFR 30874, 47073)
3. Department of Transportation DOT-E 8876
4. 40 CFR 136 Guidelines Establishing Test Procedures for Analysis of Pollutants
5. 40 CFR 261 Identification and Listing of Hazardous Waste
6. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
7. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
8. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
9. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal
10. 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
11. 40 CFR 268 Subparts (C) and (D) Land Disposal Restrictions

12. 40 CFR 279 Standards for the Management of Used Oil
13. 49 CFR 107 Hazardous Materials Program Procedures
14. 49 CFR 171 General Information, Regulations and Definitions
15. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information and Training Requirements
16. 49 CFR 173 Shippers – General Requirements for Shipments and Packaging
17. 49 CFR 177 Carriage by Highway
18. 49 CFR 178 Specifications for Packaging

PART 2 PRODUCTS

2.01 POLYETHYLENE SHEETING

A. Minimum six mil polyethylene sheeting.

2.02 PACKING MATERIALS

A. Provide all of the materials and equipment required for packaging, labeling, placarding and transportation of waste streams from the site in conformance with department of transportation, federal, state and local regulations.

PART 3 EXECUTION

3.01 GENERAL

A. Excavation and disposal of PAH and RCRA metal contaminated soils shall be governed by this Section.

B. Contractor shall remove PAH and RCRA metal contaminated soils as defined by the Consultant.

C. All PAH and RCRA metal contaminated soils will be hauled to a permitted and approved landfill (Great River Regional Waste Authority in Fort Madison).

D. The Consultant will make the final determination in the field as to the limits of PAH and RCRA metal contaminated soil excavation. The contract drawings include the estimated area of PAH and RCRA metal contaminated soil.

E. Mitigate Exposure Risk: Provide appropriate protection to the general public and to all employees working outside of the contaminated area as required by local, state, and federal regulations. Additionally, all employees entering the contaminated area must be properly trained, certified, and wearing the appropriate personal protective equipment as required by local, state, and federal regulations.

3.02 CONTRACTOR EMPLOYEE REQUIREMENTS

A. Employees must be properly trained and licensed to perform work as part of this contract. Safety procedures shall include avoiding contact with contaminants and preventing spread of contamination offsite.

B. Project foremen, supervisors, and managers that will be at the site that are responsible for completion of work covered by this specifications section must meet all of the requirements of an OSHA First Responder Awareness Training and this training must include a minimum 4-hour training course.

C. The contractor must comply with OSHA health and safety regulations. Beyond typical construction Personal Protective Equipment (PPE) OSHA requires additional PPE for employees working around PAH and RCRA metal contaminated soil and groundwater.

D. Any personnel involved with the handling of groundwater or excavation activities working at the site shall wear disposable nitrile gloves, safety glasses, and rubber safety boots. An employee may wear standard steel-toe boots if disposable latex covers are worn over them.

E. Boots should be cleaned at the end of the work day while still at the project site.

F. Nitrile gloves/latex boot covers should be replaced and disposed of as needed. Nitrile gloves/latex boot covers should also be discarded at the end of the day. The receptacle for discarding and disposal of these gloves and boot covers shall be designated, signed and labeled.

G. Personal hygiene practices while excavating potentially PAH and RCRA metal contaminated soil are also important. Before eating, drinking, smoking, or using the restroom, workers shall wash their hands and arms.

3.03 EXCAVATION

A. If visible emissions are documented during construction activities, adequate wetting may be required by the Consultant to prevent dispersion of PAH and RCRA metal contaminated soil.

B. All excavated PAH and RCRA metal contaminated soil shall be placed directly into trucks and covered for disposal to the landfill. If necessary, temporary contaminated soil stockpiles shall be placed on six mil polyethylene sheeting, covered with six mil polyethylene sheeting, and secured to prevent wind or rain erosion and to reduce human exposure. Stockpile locations shall be directed by the CITY and Consultant and shall not result in water runoff from the site.

C. If rain is anticipated while the excavation work is occurring, contaminated material stockpiles must be covered with six mil polyethylene and storm water BMPs such as silt fence, straw, or hay bales, must be employed around covered stockpiles and project site to contain contaminated material, to prevent erosion and cross contamination between stockpiles and prevent runoff from the site.

D. All excavations shall be performed to the depths indicated on the contract plans or as specified herein. If confirmation of depth for certain areas are necessary, Contractor shall contact the City's Consultant for concurrence.

E. Following completion of all on-site excavation activities and prior to initiating backfilling, spreading imported soil, and site grading work within the excavated area the remaining exposed soil at the bottom of the excavation must be sampled by the City's Consultant to determine if residual contaminated soil remains.

F. Sheeting and shoring shall be placed as necessary for the protection of the Work and for the safety of personnel.

G. Grading shall be done as necessary to prevent surface water from flowing into trenches, structure removals, or the excavation. Contractor shall remove any water accumulated in the excavation by pumping onto contaminated soil being removed from site or by other methods as approved by City's Consultant. Water accumulated in the excavation shall be assumed to be contaminated and disposed of in accordance with Iowa Department of Natural Resources and CITY regulations.

   1. If dewatering is necessary, the CITY and Consultant must be notified 48 hours in advance.
   2. Consultant may collect water samples from the excavation area for laboratory analysis before any dewatering can occur.
   3. If water is collected and analyzed, sample results shall be used to determine if and at what flow rate discharge to the storm sewer or sanitary sewer is allowable.

H. Contractor shall provide sufficient barricades and protective devices adjacent to excavations to safeguard against injury.

I. Protection and removal of utility lines: Contractor shall notify all affected utility companies at least three consecutive working days preceding construction operations to coordinate any work regarding poles, wires, valve boxes, fire hydrants, and other surface obstructions and to determine the location of gas, water main, power, light, telephone or telegraph conduit or service connection thereto or any other subsurface structure that crosses or passes through the space occupied by any of the proposed improvements. The Contractor shall make advance arrangements with the utility companies for any relocation of interfering utilities so as not to delay construction.

J. Interruptions of services: Interruptions of utility services to existing enclosures or facilities which become necessary either directly or indirectly due to Work required under this contract shall be coordinated with the CITY through the Consultant. Contractor is responsible for providing utility interruptions notices to those impacted, unless otherwise arranged and approved by City's Consultant. If the down time for connections is limited by them as to duration and time (weekend, nights, or holidays), Contractor shall perform the Work during the designated period at no additional cost to the CITY.

3.04 UNAUTHORIZED EXCAVATION

A. Unauthorized excavation consists of removal of materials beyond indicated elevations or dimensions without specific direction of the Consultant. Notify the Consultant when unauthorized excavations are made. Contractor is responsible for documenting and mitigation means for compliance if unauthorized excavations disturbed contaminated soils.

3.05 STABILITY OF EXCAVATION

K. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Provide shoring and bracing to retain banks and prevent collapse of excavations as necessary to safeguard workers, prevent movement of adjacent ground, and avoid damage to existing improvements.

L. Additional excavation of soil for slope stabilization must be done in accordance with the provisions of this specification. This Work will be considered incidental and no additional payment will be made other than cost associated with hauling and disposal of any contaminated soil.

3.06 MATERIAL DISPOSAL

A. Material disposal and responsibility. Disposal of all excavated material on this project will be the responsibility of the Contractor. All excavated PAH and RCRA metal contaminated soils shall be loaded and hauled to an approved permitted landfill. The Landfill – Great River Regional Waste Authority located near Fort Madison, Iowa, has approved this PAH and RCRA metal contaminated soil for disposal.

B. Testing required for disposal has already been completed by the CITY and Consultant. Additional testing required for completion of the Work will be completed at the expense of the CITY.

1. PAH and RCRA metal contaminated soils were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) analysis. Laboratory analysis indicated a TCLP concentration of 0.949 mg/L. As a result of the laboratory concentration, the soil is not subject to Resource Conservation and Recovery Act (RCRA) hazardous waste handling.

2. Consultant will collect soil samples across the property following excavation. Soil samples will be submitted for laboratory analysis to determine PAH and RCRA metal concentrations in the soil. Additional excavation may be necessary pending laboratory results.

C. Any required waste application permits for PAH and RCRA metal contaminated soil disposal will be completed by the Consultant prior to commencement of material disposal activities.

D. Provide and prepare manifests as required for the transportation and disposal of le PAH and RCRA metal contaminated soils from the site. Non-hazardous waste manifests shall be completed in a form acceptable to the state and federal regulatory agencies. After completion by the Contractor, all waste manifests shall be signed by the CITY or CITY'S Consultant.

3.07 HAULING REQUIREMENTS

A. Notify all applicable federal, state and local representatives, or any other authority which has jurisdiction over the mode and route of transport, in advance of commencing waste stream transport. Obtain all required approvals from those parties having jurisdiction over the transport.

B. Each vehicle providing off-site transportation of PAH and RCRA metal contaminated soil shall have any required collection and transportation service licensing. All trucks must be properly covered to prevent dispersion during transport.

C. Implement hauling or transport schedule which minimizes congestion on and around site.

D. All contaminated soils that are to be transported off site must be fully covered.

E. Any equipment leaving the project site must have soil and any excess materials removed to prevent contamination from leaving the site, including from tires. If necessary,

Contractor is responsible for washing the equipment including tires. Any water used for washing shall be captured and properly disposed of as contaminated.

F. Use transporter(s) approved by CITY. Any use of substitute or additional transporters shall have previous approval of the CITY.

3.08 TRANSPORTATION AND ENTRY/EXIT REQUIREMENTS

A. All waste streams shall be transported directly to the disposal facility from the site. Neither the route nor the mode of transportation shall deviate from the approved route without prior written approval from the CITY or CITY'S Consultant.

B. Inspect existing roadways immediately adjacent to the site and document their condition prior to project start-up. Any/all repairs or improvements, including permits and/or approvals, to accommodate off-site transportation of wastes shall be responsibility of Contractor. Provide documentation to CITY or Consultant prior to any hauling operations.

C. Document all entry/exit procedures for transports in Work Plan and instruct and provide written instructions to all transporters as to these procedures. Contractor shall see that all personnel are provided with adequate protective equipment in accordance with Contractor's health and safety plan.

D. Contractor is responsible for obtaining all required transportation permits.

3.09 LOADING OF MATERIALS INTO TRANSPORT CONTAINERS

A. Waste streams will be loaded into transport containers/vehicles in a manner which minimizes the spilling of materials. Waste streams shall be secured in transport containers in accordance with the regulations which govern the transportation of these materials. At a minimum, each load of excavated material must be covered prior to leaving the site. Materials shall be loaded into transport containers in manner which does not damage any polyethylene sheeting or other protective liner installed. Transport vehicles shall not be driven over waste streams stockpiled on-site or contaminated material which will be excavated during the completion of the Work.

B. Furnish, install, and maintain any on-site temporary loading facilities as required.

C. Provide equipment, personnel, and on-site facilities necessary to handle and load waste materials designated for off-site transport.

D. Ensure that all waste materials loaded for off-site transportation have been accurately identified and are in compliance with appropriate state and federal regulations.

E. Each container shall be visually inspected upon loading to ensure it is properly sealed and there are no signs of spillage or leakage. All vehicles hauling bulk wastes from the site shall be inspected by the Contractor prior to leaving the site. Contractor shall certify proper containerization for each transporter leaving the site.

F. Containers found to be leaking or bulk transports found leaking shall not be loaded until source of leaking is located and source contained. Area where leaking occurred, and any contaminated equipment shall be decontaminated.

G. Contractor shall be responsible for any and all cleanup activities involving waste spilled in transit or during loading operations and shall be at the Contractor's expense.

H. Contractor shall be responsible for verifying appropriate container sizes for off-site disposal in accordance with Federal Department of Transportation (DOT), state, and local regulations. Any requirements and expenses for oversize load are Contractor's responsibility.

END OF SECTION

SECTION 02 80 00
FACILITY REMEDIATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removal, Cleanup and Disposal of Hazardous Materials.
2. Applicable Standards and Guidelines.

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the contract price.

1.03 DESCRIPTION

A. For this Project, hazardous materials include hazardous waste, universal waste, and non-hazardous materials that require, or may require special handling and cannot be co-disposed with building demolition materials or municipal solid waste. This includes but is not limited to: universal waste, PCB-containing equipment and materials, petroleum products, compressed gasses, flammable liquids, potentially radioactive materials, and containers with unknown liquids. For guidance purposes, a Phase II Targeted Brownfields Assessment report which included a Hazardous Materials Survey is included in Appendix 3.

1. Contractor is responsible for determining the extent of removal, appropriate disposal, and to provide adequate profiling (testing) of the material as may be necessary for transportation and acceptance at an approved disposal facility.

B. Provide Services for proper removal and disposal of hazardous materials as present on site.

1. Work shall be completed prior to building demolition.
2. Segregate materials in DOT hazard classes to comply with the EPA mandated categories. If necessary, test material to determine property hazard class for disposal.
3. The hazardous materials shall be profiled as applicable. Profiling analysis, when needed, will be at the expense of the Contractor as to determine the exact makeup of any or all specified materials designated for disposal.
4. Chemicals shall be lab-packaged/bulked according to DOT and EPA Regulations. Packaging materials shall comply with EPA, DOT, local regulations and the individual disposal facility requirements.
5. Container inventories shall be prepared, containers properly labeled, and waste manifests prepared.
6. Materials shall be removed and safely transported to the disposal facility per DOT requirements. Refer to Section 02 81 00 – Transportation and Disposal of Hazardous Materials.

7. Disposal: Refer to Section 02 81 00 – Transportation and Disposal of Hazardous Materials.

1.04 COMPLIANCE WITH LAWS AND STANDARDS

A. Ensure that all Work is performed in strict compliance with applicable federal, state, county and municipal codes, laws, ordinances, rules or regulations.

B. CITY may stop Work in the event that the Contractor fails to comply with the provisions or specifications of any applicable federal, state, or local regulations. Any cost incurred to the Contractor as a result of Work stoppage shall be borne by the Contractor.

1.05 NOTIFICATIONS AND PERMITS

A. Obtain all required permits and submit the property notifications to federal, state, and local regulatory agencies.

1.06 SUBMITTALS

A. Submit a Work plan within ten (10) calendar days of award of the contract. Plan shall provide the specific information detailing the proposed methods of profiling, lab packing, transporting, storing and disposing of the hazardous materials.

B. Copies of required notifications to regulatory agencies.

C. A copy of the hazardous waste hauler registration number.

D. A list of hazardous waste disposal and treatment facilities that will be utilized by the Contractor.

E. Evidence that employees have been instructed of chemical hazards and any other hazardous materials to be used or possibly encountered in the Work Project.

1. Hazard Communication Standard: 29 CFR 1910.120 and 40 CRF 264.16, 265.16.

F. Evidence that employees have received instruction in respiratory protection and fit testing.

1. OSHA Regulation 29 CRF 1910.134

G. Current 40-hour OSHA Training for Hazardous Waste Operations for all supervisors, Haz/Mat technicians, and lab-packing personnel.

1. OSHA – 29 CFR 1910.12(h)(2)
2. OSHA – 29 CFR 1910.120 (e)
3. EPA – RCRA 40 CFR 264.16

H. Evidence that supervisors, technicians, or other employees who will monitor Work have received or have been certified in competency to manage Work.

1. OSHA – 29 CFR 1910.12(e)

I. Current medical certificates for all personnel that will be working on Project in accordance with OSHA 29 CFR 1910.120(e).

1. Personal Protective Equipment: 29 CFR 1910 Subpart I, 1910.132 – 1910.140.

J. An emergency plan for situations, including an emergency response team for emergency spill cleanup, medical and fire emergencies, etc.

1. EPA – 40 CFR 264.30, 264.56, 265.30, 265.55
2. OSHA – 29 CFR 1910.120

K. A Work schedule detailing the time periods to complete inventory, profiling, lab-packing, transporting, storage and disposal phases of Project.

L. At project closeout, Contractor must submit copies of all chemical inventory sheets, manifests, documentation, notifications, daily Work logs, any incident reports, waste treatment standards, locations of disposal facilities where wastes were transported to, and any other documents affiliated with the Work Project.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 SUMMARY

A. Survey existing conditions and correlate with requirements indicated to determine extent of hazardous material removal.

B. Inventory and record the condition of items to be removed.

3.02 ACCIDENT PREVENTION

A. Site safety shall be the top priority and responsibility of the Contractor. The Contractor and all subcontractors shall monitor their personnel at all times.

B. Supply and use personal protective equipment, fire extinguishers, chemical detection tubes, and other safety equipment required to complete the Work.

C. Erect any necessary barricades/barrier warning tapes to isolate Work areas from unauthorized persons.

1. Maintain any barricades/barrier tapes throughout the Work Project as needed.
2. Ensure that Work areas are always secured from unauthorized persons.

3.03 SPILLS

A. Contractor shall exercise extreme care when performing the Work to be done as to avoid spills or contaminating the site or surrounding environment.

B. Report spills of any kind immediately to the CITY and promptly implement containment and cleanup action as necessary or as directed.

C. Provide all necessary equipment, materials, and labor to clean up any spills released while performing any Work in these specifications. All costs related to spills, including but not limited to contract delays, monitoring and waste disposal, will be borne by the Contractor.

3.04 GENERAL PROCEDURES

A. Isolate, seal, post, and secure Work areas in accordance with OSHA Regulation 29 CFR 1910.120.

B. Prior to start of Work, Work area is to be inspected for proper isolation, posting, and proper enclosures, if needed.

C. Ensure that all hazardous waste materials and chemicals, including any unknowns, are properly identified, profiled, lab-packed, and disposed of at an approved disposal facility.

D. Leave Work area free of any materials and equipment used during the Work Project.

E. Refer to Section 02 81 00 – Transportation and Disposal of Hazardous Materials for manifesting and disposal requirements.

END OF SECTION

SECTION 02 81 00

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for the transportation and disposal of materials generated during this Project which require off-site disposal and/or treatment. Materials that will or may be found on-site requiring off-site recycling or disposal include:

    a. Rubbish, trash, and miscellaneous solid waste.

    b. PAH and RCRA metal contaminated soils.

    c. Structures and infrastructure

    d. Miscellaneous building debris and rubble.

    e. Miscellaneous household hazardous materials.

B. Furnish all labor, equipment, materials and incidentals required to transport all materials required to be recycled or disposed of off-site.

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the contract price.

1.03 SUBMITTALS

A. Within 10 days after Notice to Award:

1. Names and locations of all facilities proposed to be used for the disposal and recycling of materials off-site.

2. Acceptance criteria, if any for each type of waste stream at each facility proposed.

3. Sampling and analytical criteria, if any, for each type of waste stream at each facility proposed.

4. Any other restrictions which may be imposed by each of the proposed facilities.

5. CITY has up to five days to review and respond following receipt of submittals.

6. Proposed transportation routes and alternate transportation routes to each disposal facility.

B. As the Work proceeds:

1. Blank sample of shipping documents and disposal manifests for each type of waste stream a minimum of three days prior to their proposed date of use.

2. Copies of all waste profile forms, waste disposal manifests, and bills of lading required by the disposal facilities.

3. Copies of certificates of disposal, destruction, treatment, recycling as applicable and

as issued by the disposal facility following acceptance and final disposition of the various waste streams.

C. At Contract Closeout:

1. Summary spreadsheet of all waste hauled from the site, quantities, and identification of the disposal facility.

1.04 QUALITY ASSURANCE

A. Contractor is responsible to ensure each facility possesses all necessary permits required for accepting and disposing of wastes and that these permits are current.

B. Great River Regional Waste Authority in Fort Madison, Iowa has been identified to receive the contaminated soil and provide clean import soil. Contractor is required to use only disposal and recycling facilities approved by CITY or City's Consultant for performance of Work. Contractor is required to obtain approval(s) prior to commencing demolition and soil remediation.

C. Contractor shall have responsibility to meet requirements of these Specifications, and acceptance of bid does not constitute nor imply approval of proposed off-site waste disposal facility(ies). CITY shall have right to deny approval of any/all facility(ies) that does not comply with these Specifications.

D. CITY or City's Consultant may schedule inspections of disposal facility, as appropriate, to assess compliance status.

E. In event that identified and approved facility ceases to accept stated waste materials or facility ceases operations, it is Contractor's responsibility to locate alternate approved and permitted facility for accepting waste materials. Contractor is responsible for making necessary arrangements to utilize facility, and alternate facility must be approved by CITY in same manner and with same information as for original facility.

F. Originate, maintain, and provide CITY or CITY'S Consultant with copies of waste shipment manifest records for all waste materials transported off-site. Contractor shall verify nature and quantity of wastes shipped on each load. Manifest forms and records shall be consistent with requirements of RCRA, U.S. DOT regulations, and state requirements. CITY shall be designated generator for purposes of transport manifest.

1. Provide CITY with written documentation verifying receipt of each load at designated treatment or disposal facility and verification of proper treatment or disposal.

2. Notify CITY immediately if Contractor fails to receive "Notification of Receipt" of any waste shipment within reasonable time frame approved by CITY or CITY'S Consultant. Contractor shall undertake whatever actions are necessary to determine status of shipment and remedy situation.

1.05 REFERENCE STANDARDS

A. Comply with all applicable federal, state and local laws, codes and ordinances which govern or regulate waste transportation and disposal. Regulations regarding transportation and final disposal of wastes at minimum include but are not limited to the following United States Federal Government – Code of Federal Regulations (CFR):

1. 29 CFR Occupational Safety and Health Standards

2. 49 CFR 387 (46 CFR 30874, 47073)
3. Department of Transportation DOT-E 8876
4. 40 CFR 136 Guidelines Establishing Test Procedures for Analysis of Pollutants
5. 40 CFR 261 Identification and Listing of Hazardous Waste
6. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
7. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste
8. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
9. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal
10. 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
11. 40 CFR 268 Subparts (C) and (D) Land Disposal Restrictions
12. 40 CFR 279 Standards for the Management of Used Oil
13. 49 CFR 107 Hazardous Materials Program Procedures
14. 49 CFR 171 General Information, Regulations and Definitions
15. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information and Training Requirements
16. 49 CFR 173 Shippers – General Requirements for Shipments and Packaging
17. 49 CFR 177 Carriage by Highway
18. 49 CFR 178 Specifications for Packaging

PART 2 PRODUCTS

2.01 PACKING MATERIALS

A. Provide all of the materials and equipment required for packaging, labeling, placarding and transportation of waste streams from the site in conformance with department of transportation, federal, state and local regulations.

PART 3 EXECUTION

3.01 NOTIFICATION

A. Notify all applicable federal, state and local representatives, or any other authority which has jurisdiction over the mode and route of transport, in advance of commencing waste stream transport. Obtain all required approvals from those parties having jurisdiction over the transport.

3.02 MANIFESTING

A. Provide and prepare manifests as required for the transportation and disposal of the waste streams from the site. Waste manifests shall be completed in a form acceptable to the state and federal regulatory agencies. After completion by the Contractor, all waste manifests shall be signed by the CITY or CITY'S Consultant.

3.03 LABELING

A. Upon removal of all contaminated materials, properly label all containers or transports prior to transporting these materials for disposal. Contractor shall be responsible for labeling all containers and transports in accordance with applicable federal and state regulations.

3.04 TRANSPORTATION AND ENTRY/EXIT REQUIREMENTS

A. Transport all waste streams from the site in conformance with department of transportation, federal, state and local regulations governing the type of waste stream being transported. This includes, but not limited to, requirements for operator training and requirements for packaging, labeling, marking, placarding of various waste shipments.

B. All waste streams shall be transported directly to the disposal facility from the site. Neither the route nor the mode of transportation shall deviate from the routes submitted to the CITY without prior written approval from the CITY or CITY'S Consultant.

C. Inspect existing roadways immediately adjacent to the site and document their condition prior to project start-up. Any/all repairs or improvements, including permits and/or approvals, to accommodate off-site transportation of wastes shall be responsibility of Contractor. Provide documentation to CITY or CITY'S Consultant prior to any hauling operations.

D. Document all entry/exit procedures for transports in Off-Site Transportation and Disposal Plan and shall instruct and provide written instructions to all transporters as to these procedures. Contractor shall see that all personnel are provided with adequate protective equipment in accordance with Contractor's health and safety plan.

3.05 LOADING OF MATERIALS INTO TRANSPORT CONTAINERS

A. Waste streams will be loaded into transport containers in a manner which minimizes the spilling of materials. Materials which have been segregated on site shall not be mixed in transport containers unless characterized as same waste type. Waste streams shall be secured in transport containers in accordance with the regulations which govern the transportation of these materials. At a minimum, each load of excavated material must be covered prior to leaving the site. Materials shall be loaded into transport containers in manner which does not damage any polyethylene sheeting or other protective liner installed. Transport vehicles shall not be driven over waste streams stockpiled on site or contaminated material which will be excavated during the completion of the Work.

B. Furnish, install, and maintain any on-site temporary loading facilities as required.

C. Provide equipment, personnel, and on-site facilities necessary to handle and load waste materials designated for off-site transport.

D. Ensure that all waste materials loaded for off-site transportation have been accurately identified and are in compliance with appropriate state and federal regulations.

E. Each container shall be visually inspected upon loading to ensure it is properly sealed and there are no signs of spillage or leakage. All vehicles hauling bulk wastes from the site shall be inspected by the Contractor prior to leaving the site. Contractor shall certify proper containerization for each transporter leaving the site.

F. Containers found to be leaking or bulk transports found leaking shall not be loaded until source of leaking is located and source contained. Area where leaking occurred, and any contaminated equipment shall be decontaminated.

G. Contractor shall be responsible for any and all remediation activities involving waste spilled in transit or during loading operations and shall be at the Contractor's expense.

H. Contractor shall be responsible for verifying appropriate container sizes for off-site disposal in accordance with Federal Department of Transportation (DOT), state, and local regulations. Any requirements and expenses for oversize load are Contractor's responsibility.

3.06 HAULING REQUIREMENTS

A. Implement hauling or transport schedule which minimizes congestion on and around site.

B. Obtain and prepare manifest forms, obtain waste code numbers, and complete waste shipment records as required by State of Iowa and 40 CFR 261 for verifying waste type and quantity of each load transported off-site. Manifest form shall be verified by CITY or CITY'S Consultant and copies of each manifest retained by CITY or CITY'S Consultant following shipment.

C. CITY or CITY'S Consultant will provide hazardous waste generator identification number and/or EPA identification number (for hazardous waste only) pursuant to 40 CFR 261 for use on manifest, if required.

D. CITY or CITY'S Consultant will sign hazardous waste manifest as generator.

E. Transport waste from site only to those facilities listed on manifest.

F. Routes and timing must be coordinated with appropriate state regulatory agencies. All highway and road restrictions shall be adhered to by Contractor.

G. Use transporter(s) approved by CITY. Any use of substitute or additional transporters shall have previous approval of the CITY.

3.07 VEHICLE DECONTAMINATION

A. Decontaminate transport vehicles and containers in a designated decontamination area prior to their leaving the site. Decontamination shall include the removal of material on the tires and axles of trucks and any other material on the vehicle as a result of loading operations.

3.08 OFF-SITE DISPOSITION

A. Dispose the various waste streams at CITY preapproved facilities. All waste facilities must have a valid facility permit from the regulating authority (U.S. or state) for that type of facility and for the type of waste which will be received. All disposal facilities must be constructed in a manner which meets or exceeds the requirements of federal regulations governing the type of disposal facility. No change in disposal facility for any type of waste stream shall be allowed without prior written approval of the CITY or CITY'S Consultant.

END OF SECTION

SECTION 09 00 00

STORMWATER POLLUTION PREVENTION PLAN

9.01 GENERAL CONDITIONS

A. All contractors/subcontractors shall conduct their operations in a manner that minimizes erosion and prevents sediment from leaving the site. The Contractor shall be responsible for compliance and implementation of the Storm Water Pollution Prevention Plan (SWPPP) for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in the SWPPP.

B. In the event of conflict between the requirements of the SWPPP and Water Pollution Control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive laws, rules, or regulations shall apply.

C. The Contractor shall hold the CITY and CITY'S Consultant harmless from any and all claims of any type, including but not limited to, damages to adjoining public or private property, fines from regulatory agencies, including reasonable attorney fees incurred to the CITY and CITY'S Consultant resulting from failure to comply with this SWPPP. Further, if the Contractor fails to take necessary steps to promptly remove earth sedimentation or debris which moves onto adjoining public or private property, the CITY or CITY'S Consultant may remove such items and deduct the cost of the removal from amounts due to the Contractor.

D. This SWPPP does not relieve the Contractor of their responsibility to meet the project specifications or maintain safety of the site.

E. The Prime Contractor shall be responsible for compliance with and implementation of the SWPPP. Payment for the inspecting and reporting requirements of the SWPPP shall be included in the price for SWPPP Management. Failure to comply with the SWPPP, including maintenance of the required documentation, shall be grounds for withholding or delaying payments to the Contractor.

9.02 SITE DESCRIPTION

A. This SWPPP is for the demolition and soil remediation project in the City of Keokuk, Iowa. The project is located in Lee County, Iowa, in the following area:

   1. Section 22 Township 65 Range 5

B. This SWPPP covers approximately 9.44 acres of disturbed ground.

C. Refer to drawings for locations of typical grades and major structural and non-structural controls.

D. The existing site contains several buildings and paved areas as part of a former industrial operation. This project involved demolition, remediation for contaminated soils, import of clean soils and returning the site to a vegetated state of no mow short fescue, thereby reducing the runoff coefficient from approximately 0.70 to 0.30.

9.03 POTENTIAL SOURCES OF POLLUTION

A. Site sources of pollution generated as a result of this project relate primarily to soil and sediment, which may be transported as the result of a rainfall event. Sediment controls

are described in Section 9.05 of this SWPPP. This SWPPP also describes controls for other non-sediment operations. Other controls are described in Section 9.06.

B. Other operations may have storm water runoff, the regulation of which is beyond the control of this SWPPP. Potentially this runoff can contain various pollutants related to site-specific land uses. Other operations include:

   1. Rural Agricultural Activities: Runoff from agricultural land use can potentially contain chemicals including herbicides, pesticides, fungicides, and fertilizers.

9.04 SITE SEQUENCE

A. Unless infeasible, provide and maintain natural buffers around surface waters, and direct storm water to vegetated areas.

B. Install perimeter controls before the land-disturbing activity occurs. Do not remove temporary perimeter controls until all upstream areas are finally stabilized as determined by the CITY.

C. Do not disturb an area until it is necessary for construction to proceed.

D. Time construction activities to limit impact from seasonal climate changes or weather events.

E. Silt fence shall be in place at the project sites as appropriate prior to or in conjunction with the construction of the stormwater practices. Silt fence shown on the drawings establishes an estimate of the quantity that will be required. The Contractor shall install silt fence in locations that will be the greatest benefit for preventing sediment runoff.

F. Silt fence shall not be removed prior to final stabilization. The Contractor shall also install silt fence and ditch checks at the locations where silt could move off site. Filter socks or wattles may be used in lieu of silt fence as approved by the CITY or CITY'S Consultant.

G. As stockpiles are created, silt fence shall be constructed around the pile. The stockpile shall be seeded with the temporary seed mixture per SUDAS.

H. As areas are brought to grade, additional control measures shall be installed to control storm water discharge:

I. Stabilizing crop seeding, fertilizing, and mulching shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 14 days, the area shall be stabilized by seeding and/or mulching immediately.

   1. As areas reach their final grade, they shall be permanently fertilized, seeded, and mulched.

   2. As outlets are completed, outlet protection shall be placed.

9.05 DESCRIPTION OF SEDIMENT CONTROLS

A. All control measures shall be placed as shown on the drawings or described in the project specifications and this SWPPP.

B. Silt fence, wattles, or filter socks shall be placed in accordance with Iowa DOT Standard Road Plan EC-201 (SUDAS Figure 9040.19) in all areas where runoff leaves the site. The engineering fabric shall meet Iowa DOT Section 4196.01.B. The Contractor is required to maintain the silt fences, wattles, and filter socks. Maintenance includes

keeping the device in proper working order by cleaning, repairing, or replacing throughout the contract period. Cleaning the silt fence, wattle, or filter sock shall begin when the device has lost 50% of its capacity. Payment for furnishing, installing, and maintaining the devices shall be included in the silt fence or wattle bid item.

C. The silt fence, wattle, or filter sock shall be removed when the CITY is in agreement that permanent seeding is established. When removing the device, the Contractor shall disconnect the fabric from the posts and remove the posts. The fabric shall then be removed. Fence posts and fabric shall be disposed in accordance with the appropriate regulations as described for construction waste. Removal of the silt fence, wattle, or filter sock shall be included in a bid item for Removal of Device.

D. Topsoil at minimum two-inch depth shall be established, after soil disturbing activities have been completed, on all areas of the site where the ground surface has been disturbed.

E. After construction is completed, the areas that are not covered by granular surfacing or pavement shall be fertilized, seeded, and mulched. The seeded area shall be monitored and remedial action taken until the vegetation is well established. The remedial action could include repairing eroded areas and reseeding, mowing, and spraying to control weeds, watering to encourage growth, and reseeding and mulching areas that do not otherwise develop. After the seeding is established, the silt fence shall be removed as described above.

F. During construction, measures shall be taken to eliminate off-site tracking of sediment by construction vehicles. Off-site tracking shall be eliminated by not leaving the site when the surface is wet and muddy, or cleaning the vehicles prior to leaving the site. All sediment deposited on paved roadways shall be removed, not washed into storm sewer.

G. During construction, measures shall be taken to minimize dust. The working area and haul roads shall be watered and/or surfaced with granular material or pavement to minimize dust. The Contractor shall be responsible for any and all methods used for dust control to avoid nuisance complaints as defined in the Iowa Code Section 657 and to prevent visible emissions beyond the project limits. Payment for dust control shall be included in the bid price for SWPPP Maintenance.

H. As work progresses, additional erosion control items may be required as determined by the Engineer after field investigations. Payment for other control measures shall be determined by change order.

I. For additional guidelines on erosion control measures refer to the following documents:

1. SUDAS Section 9040. It is available in electronic form at: http://www.iowasudas.org/manuals/specs/div9/9040.pdf.
2. Iowa DOT, Series 2023, as amended by General Supplemental Specifications GS-23002 dated April 16, 2024. They are available in electronic form at: http://www.iowadot.gov/erl/index.html.
3. The Iowa Construction Site Erosion Control Manual provided by the Iowa Department of Natural Resources. It is available in electronic form at: http://www.ctre.iastate.edu/erosion/manuals/const_erosion.pdf.

9.06 DESCRIPTION OF CONTROLS OF OTHER POLLUTANTS

A. During the course of construction, it is possible situations may arise where other pollutants (not sediment) will be encountered. When such situations occur, they shall be handled according to all applicable federal, state, and local regulations in effect at the time.

B. Disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules, or regulations shall apply.

C. Hazardous waste materials shall be disposed of in accordance with applicable local, state, and/or federal regulations. Equipment refueling and maintenance operations shall be carried out in such a manner to prevent any spills, uncontrolled loss, or contamination of the soil and groundwater. Potentially hazardous materials shall be used with great care to prevent spillage.

D. The Contractor shall provide and maintain adequate sanitary facilities for the use of the employees and subcontractors. These facilities shall be located away from storm water inlets and shall conform to federal, state, or local sanitary requirements.

9.07 MATERIALS MANAGEMENT

A. Materials or substances expected to be onsite during construction include:

1. Contaminated Soils
2. Pipe
3. Metals
4. Wood
5. Pavement materials
6. Demolition materials
7. Miscellaneous wastes
8. Utility infrastructure
9. Construction wastes
10. Fertilizers
11. Fuel and other petroleum-based materials required for equipment operation
12. Other construction materials typically associated with work of this type

B. The following is a list of practices that shall be used to minimize spills or accidental exposure of materials and substances to stormwater runoff:

1. An effort shall be made to store onsite only enough products required to complete the job.
2. All materials stored onsite shall be kept in a neat, orderly manner and in their appropriate containers. If available, projects shall be kept under a roof or other enclosure.

3. Materials shall be kept in their original containers with the original manufacturer's label.
4. Substances shall not be mixed with one another unless recommended by the manufacturer.
5. Manufacturer's recommendations for proper use and disposal shall be followed.
6. The job site superintendent shall be responsible for daily inspection to ensure proper use and disposal of materials.
7. Special care shall be taken with hazardous products:
    a. Products shall be kept in their original containers with the original manufacturer's label.
    b. The original labels and material safety data sheets shall be kept for each of the materials as they contain important product information.
    c. Disposal of any excess product shall be done in a manner that follows all manufacturers', federal, state, and local, recommended methods for proper disposal.
8. Keep all products, vehicles, rubbish, etc., out of the floodplain.

C. The following is a list of potential sources of pollution and specific practices to reduce pollutant discharges from materials or sources expected to be present during construction:
1. Petroleum storage tanks
    a. All onsite vehicles shall be inspected and monitored for leaks and receive preventative maintenance to reduce the chance of leakage.
    b. Steps shall be taken to eliminate contaminants from storage tanks from entering the soil. Any petroleum storage tanks kept onsite shall be located with an impervious surface between the tank and the ground.
2. Solid and construction wastes
3. All trash and construction debris shall be kept consolidated and properly disposed as necessary. No construction waste materials shall be buried onsite. The waste material shall be consolidated in a location where contact with storm water discharge is minimized. The Contractor shall walk the site at least weekly to pick up trash and debris.
4. Fertilizers
    a. Fertilizers shall be applied in the amounts necessary to meet specified application rates. The fertilizer shall be worked into the soil to minimize contact with storm water.

D. Hazardous substance spill prevention and response shall be addressed as follows:
1. The Contractor is responsible for training all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or wastes shall be allowed to come into contact with storm water discharges. If contact does occur, the storm water discharge shall be contained on site until appropriate measures in

compliance with all federal, state, and local regulations are followed to dispose of the hazardous substance.

2. As used in this context, environmental laws mean the Federal Comprehensive Environment Response, Compensation and Liability Act, 42 U.S.C. Sections 9601-9657; the Hazardous Materials Transportation Act of 1975, 40 U.S.C. Sections 6901-6987, Chapter 455B of the Code of Iowa; or any other federal, state, or local statute, law, ordinance, code, rule, regulation, order, decree, or regulation relating to or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance or material as now shall be in effect.
3. In the event of a spill, the following procedures shall be followed:
    a. All spills shall be cleaned up immediately following discovery.
    b. The spill area shall be kept well ventilated, and personnel shall wear appropriate protective clothing to prevent injury from contact with the hazardous substance.
    c. Spill of toxic or hazardous material shall be reported to the appropriate state or local governmental agency and to the project manager, regardless of the size of the spill.
4. In the event the construction site has a release of hazardous substance in an amount which exceeds a reportable quantity as defined in Chapter 455B of the Code of Iowa, then the permittee shall:
5. Notify the Iowa Department of Natural Resources (DNR) at (515) 281-8694 and notify the local police department or the office of the sheriff of the affected county of the occurrence of a hazardous condition as soon as possible but not later than six hours after the onset of the hazardous condition or discovery of the hazardous condition.

E. Submit a written report to the Iowa DNR within 30 days of the verbal report containing the following information:
    1. The exact location of the hazardous condition; the time and date of onset or discovery of the hazardous condition.
    2. The name of the material, the manufacturer's name and the volume of each material involved in the hazardous condition in addition to contaminants within the material if they by themselves could cause a hazardous condition.
    3. The medium (land, water, or air) in which the hazardous condition occurred or exists.
    4. The name, address and telephone number of the party responsible for the hazardous condition.
    5. The time and date of the verbal report to the department of the hazardous condition.
    6. The weather conditions at the time of the hazardous condition onset or discovery.
    7. The name, mailing address and telephone number of the person reporting the hazardous condition.
    8. The name and telephone number of the person closest to the scene of hazardous conditions who can be contacted for further information and action.

9. Any other information, such as the circumstances leading to the hazardous condition, visible effects and containment measures taken that may assist in proper evaluation by the department.

F. Modify the SWPPP accordingly within 5 days of the spill.

G. The CFR requires at least a verbal report to the National Response Center (800-424-8802) for all spills, which affect streams or wetlands. A written report is required for spills over 1,000 gallons.

H. All spills, regardless of size, shall be reported to the project Consultant.

9.08 INSPECTION AND MAINTENANCE

A. All documents related to the storm water discharge permit shall be kept on site and available at all times and must be presented to the Iowa DNR or EPA upon request. The documents include but are not limited to the SWPPP, Notice of Intent, Proof of Publication, Storm Water Discharge Certification Statement (Co-Permitee Certification Statement), daily weather records, project inspection diary, and erosion control plan drawings.

B. The project area and control devices shall be inspected jointly by the Contractor and CITY'S Consultant every seven (7) calendar days. Inspections shall continue until the site is stabilized as determined by the CITY's Consultant, including throughout winter shutdown. The findings and any action taken as a result of the inspections shall be recorded on the inspection report. The inspections must include the following:

1. Inspect disturbed areas and areas used for storage for evidence of pollutants leaving the site and/or entering the drainage system.
2. Inspect silt fence for depth of sediment, tears, fabric securely attached to posts, and posts firmly in the ground.
3. Inspect erosion and sediment control measures identified in the SWPPP to ensure they are functioning correctly.
4. Inspect seeding for bare spots, washouts, and healthy growth.
5. Inspect state and city streets and trail for off-site tracking.
6. Inspect intakes and culverts for sediment discharge.
7. Inspect site for trash and debris.

C. The Contractor shall be responsible for selecting a qualified inspector to conduct the inspections. Qualified is defined as a person knowledgeable in the principles and practices of erosion and sediment controls. The qualified inspector shall possess the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.

D. Maintain all temporary and permanent erosion control measures in good working order by cleaning, repairing, replacing, and removing sediment throughout the permit period. Any necessary repairs shall be initiated within 24 hours of inspection. These may include:

1. Built-up sediment shall be removed from silt barriers or the barrier replaced when it has reached half the height of the barrier.
2. Built-up sediment shall be removed from sediment basins when it reaches 50% of the design capacity or at the end of the project.
3. Accumulation of earth, silt, or debris on adjoining properties or roads shall be minimized. Remove any accumulation of earth, silt, or debris immediately and take remedial action for prevention.
4. Weather information.
5. Location of sediment/pollution discharge.
6. Minor spills or potentially hazardous materials shall be cleaned up by removing and disposing of contaminated soils properly. Major spills shall be reported in accordance with Section 455B.386 of the Code of Iowa with clean-up procedures dependent on the severity of the spill.

9.09 RECORDS

A. The Contractor inspecting the control measures shall prepare inspection reports of the pollutant control measures. The reports shall:
   1. Summarize the scope of the inspection.
   2. Provide the name(s) and qualifications of personnel making the inspection.
   3. Include the date(s) of the inspection.
   4. Identify any control measures that have failed, need maintenance, or additional measures needed.
   5. Identify what actions will be taken to modify pollution control practices and who is responsible for corrective actions.

B. Inspection reports must contain the following certification statement:
   1. Inspection Report Certification Statement
   2. "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

C. The Contractor shall also keep record of the dates each control measure was installed, when major grading activities occur in a particular area, when construction activities cease in an area, and when an area is stabilized.

D. Daily weather conditions shall be recorded.

E. This SWPPP shall be revised as construction progresses to reflect current responsibilities, operations, and findings.

1. The plan shall be revised due to any deficiencies in the plan or changes in conditions noted during an inspection.
2. The Contractor shall maintain records of major construction operations, start and ending dates, and various phases of the work.
3. The plan shall be modified within three (3) calendar days of a hazardous condition, describing the release, the date of release, and the circumstances leading to the release. Steps to prevent the reoccurrence of such releases shall be identified in a plan revision and implemented.

F. A copy of the records required in this section shall be returned to the CITY upon final stabilization.

9.10 FINAL STABILIZATION AND DISCONTINUATION

A. The storm water discharge from a construction activity is no longer considered to be a discharge subject to the storm water permit requirements when the final stabilization has been reached and temporary erosion and sediment controls have been removed. A permittee must submit a Notice of Discontinuation (NOD) to inform the Iowa DNR that storm water discharge no longer needs to be covered by the general permit.

B. Final stabilization shall be considered the point at which all soil disturbing activities are complete, and a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas has been established.

C. The NOD shall be mailed to the following address:

Storm Water Coordinator

Iowa Department of Natural Resources

502 East 9th Street

Des Moines, IA 50319-0034

9.11 CERTIFICATION

A. All contractors and subcontractors who deal with or have an impact on storm water pollution issues shall sign the Co-Permittee Certification statement prior to conducting any land disturbing work on the project. Prime contractors are required to submit the signed certificate with their signed contract to the Engineer.

B. It is the Prime Contractor’s responsibility to obtain and provide signed certificates for the subcontractors to the CITY. Co-Permittee Certifications are not required for subcontractors who do not disturb a significant amount of soil (i.e., contract survey, material suppliers, and traffic control).

END OF SECTION

SECTION 31 10 00
SITE CLEARING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. Removing existing vegetation.
2. Clearing and grubbing.
3. Stripping and stockpiling topsoil.
4. Disconnecting, capping or sealing, and removing site utilities.

B. Related Sections

1. Section 01 10 00 – Summary
2. Section 01 50 00 – Temporary Facilities and Controls

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the unit bid contract price.

1.03 DESCRIPTION

A. For this project, all utilities, if not already done so, must be capped/stopped in accordance with the CITY'S requirements and removed from the site to the right-of-way or limit of excavation – whichever is nearest to the street. Small trees and bushes throughout the properties shall be removed.

B. Utilize Iowa Utility One-Call at 800 292 8989 or 811 for locates for those utilities which subscribe to this service.

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

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 VEGETATION

A. Remove and dispose of all brush, shrubs, and small trees.

3.02 EXISTING UTILITIES

A. Contractor will arrange for disconnecting and sealing any utilities within the excavation area have not already been capped/stopped before site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed. Verify utilities are sealed or capped properly with CITY Public Works Department prior to proceeding with on-site Work.

C. Utilities must be removed to the right-of-way or limit of excavation – whichever is nearest to the street.

END OF SECTION

SECTION 31 23 00
EXCAVATION AND FILL

PART 1 GENERAL

1.01 SUMMARY

D. Section includes:

1. Excavation.
2. Fill material.
3. Site grading.
4. Topsoil.
5. Seeding.

E. Related Sections

1. Section 01 10 00 – Summary
2. Section 01 50 00 – Temporary Facilities and Controls
3. Section 31 10 00 – Site Clearing

1.02 MEASUREMENT AND PAYMENT

A. Work specified in this section is included in the unit bid contract price.

1.03 SUBMITTALS

A. Submit certification of products to the Consultant prior to seed placement.

1. Seed: Submit a laboratory analysis for all seeds, specifying the purity and germination. Provide a lot number on all submittals and labeling. Ensure lot number is the same on all records pertaining to a particular seed. Provide 48 hours' notice prior to mixing the seed and give the Consultant an opportunity to witness the seed mixing. Submit a mechanically printed seed tag from an Iowa Crop Improvement Association-approved seed conditioner or grower.
2. Fertilizer: Submit a certification of the fertilizer analysis with scale weight and statement of guaranteed analysis. Submit from a certified fertilizer dealer, a mechanically printed commercial fertilizer label, or bill of lading. Comply with the inspection and acceptance requirements of Iowa DOT Materials I.M. 469.03.
3. Wood Cellulose Fiber Mulch: Submit a certification of the degradable wood cellulose fiber mulch ingredients with applicable use and rate, and the water retention capacity by manufacturer or supplier.
4. Wood Excelsior Mulch: Bale wood excelsior and determine the mass (weight). Use the mass of the material, furnished by the manufacturer, to determine the rate of application.

5. Straw Mulch: Certify weight. Furnish a list of the number of bales and a corresponding ticket from an approved scale for the mulch material to be used on the project.
6. Compost: Submit certification of composted organics analysis with U.S. Compost Council's Seal of Testing Assurance (STA), recommended rates of application, and manufacturer's estimated cubic yards per ton.
7. Inoculant: Furnish information from inoculant packaging.
8. Tackifier: Submit certification of the tackifier ingredients, recommended rates of application, and expiration date.

B. Submit written instructions recommending procedures for maintenance of seeded areas.

C. Planting schedule indicating anticipated planting dates for each type of planting.

1.04 DESCRIPTION

A. Contractor is responsible for excavation of the site and backfilling to grade. Backfill must consist of appropriate materials as listed in 31.23.00.201. Contractor is responsible for the final grading, addition of topsoil, and seeding per Division 9 of SUDAS and this Project Manual.

1.05 QUALITY ASSURANCE

A. Deliver grass seed mixture in original, sealed, labeled, containers. Seed in damaged packaging is not acceptable.

B. Deliver, handle, and store all materials according to product recommendations, and protect from loss, damage, and deterioration.

C. Proceed with planting only when existing and forecasted weather conditions permit.

D. Guarantee seeded area for duration of one year after seeding to be alive and in satisfactory growth at end of guarantee period.

1. For purpose of establishing acceptable standard, scattered bare spots, none larger than 1 square foot will be allowed up to maximum of 3% seeded area.
2. Acceptance will be based upon meeting this standard one year after substantial completion or after reseeding.
3. No weed seeds allowed. If excessive weeds grow, Contractor may be required to spray and reseed at CITY'S discretion.
4. During the warranty period, correct and reseed as originally specified, any defects in the seeded areas and grass stand, such as weedy areas, eroded areas, and bare spots, until all affected areas are accepted by the Engineer.
5. Areas reseeded under the warranty shall be warranted for an additional one-year period.
6. Replacement costs are the Contractor's responsibility.

E. The following ASTM International standards may be referenced in this section.

1. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lb/ft^3 (600 kN-m/m^3)).

2. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill material may consist of approved material hauled from off-site sources. Contractor must provide the CITY the source of all imported materials.

1. Low plasticity cohesive soil characterized as lean clay free of rubble and organic material. OR
2. Backfill shall be clean, fine earth, rock, or sand, free from organic based soil, grass, roots, brush, or other vegetation, lumps larger than 6 inches, rocks larger than 3 inches, and debris.
3. Granular backfills are prohibited.

B. Suitable material shall be used for backfilling.

C. Provide fresh, clean, new crop, certified seed complying with tolerance for germination and purity and free of poa annua, bent grass, and noxious weed seed. Furnish all seeds from an established seed dealer or certified seed grower. All materials and suppliers are to follow Iowa Seed Law and Iowa Department of Agriculture and Land Stewardship regulations.

1. Refer to SUDAS Division 9 Site Work and Landscaping, Section 9010.

D. Use fertilizer of the grade, type, and form specified the complies with rules of the Iowa Department of Agriculture and Land Stewardship.

1. Grade: Identify the grade of fertilizer according to the percent nitrogen (N), percent of available phosphoric acid (P_2O_5), and percent water soluble potassium (K_2O), in that order, and base approval on that identification. The contractor may substitute other fertilizer containing analysis percentages different from those specified, provided that the minimum amounts of actual nitrogen, phosphate, and potash per acre are supplied, and that in no case does the total amount per acre of the three fertilizer elements be exceeded by 30% of the following minimum amounts.

a. **For hydraulic seeding**: Apply fertilizer in combination with seeding by a hydraulic seeder and as specified in Iowa DOT Article 2601.03,B. Apply a commercial fertilizer or the equivalent units of nitrogen, phosphate, and potash at the rate specified for the type of seeding being applied.

E. Use a sticking agent that is a commercial material recommended by the manufacturer to improve adhesion of inoculant to the seed. For small quantities less than 50 pounds, the sticking agent need not be a commercial agent, but it must be approved by the Consultant and must be applied separately, prior to application of the inoculant. Follow safety precautions specified on the product label. A sticking agent is not required if a liquid formulation of inoculant is used.

F. Use water that is free of any substance harmful to seed germination or plant growth.

G. For hydraulic seeding, mulch shall consist of the following:

1. Mechanically Bonded Fiber Matrix (MBFM)

a. Manufactured to be applied hydraulically.

b. Dyed green to facilitate visual metering.

c. All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.

d. Meet the following requirements:

i. Contain non-toxic tackifiers that upon drying become insoluble and non-dispersible to eliminate direct raindrop on soil according to ASTM D 7101 and EPA 2021.0-1.

ii. Contain no germination or growth inhibiting factors and do not form a water-resistant crust that can inhibit plant growth.

iii. Hydraulic mulch that is completely photo-degradable or biodegradable.

iv. Contain a minimum of 90% organic material according to ASTM D 2974.

v. Have a rainfall event (R-factor) of 175 < R according to ASTM D 6459.

vi. Have a cover factor of C $\leq$ 0.01 according to ASTM D 6459.

vii. Vegetation Establishment of 500% minimum according to ASTM D 7322.

viii. Water Holding Capacity 700% minimum according to ASTM D 7367.

PART 3 EXECUTION

3.01 GENERAL EXCAVATION

A. Excavation operations shall be conducted so that material outside of Work area will not be disturbed.

B. All excess suitable material excavated from the site and not used for backfill shall be removed from the site and disposed of at an appropriate landfill.

3.02 BACKFILL

A. Spread fill material in layers not exceeding 8 inches in uncompacted thickness.

B. Water or dry the fill material as necessary and thoroughly mix to obtain a moisture content which will permit proper compaction. The moisture content shall be within plus four percent (4%) to minus two percent (2%) of optimum for a maximum density.

C. Fill material shall be free of rubble or organic matter and meet the requirements of SUDAS Standard Specifications, Section 2010, 204.A, Foundation Materials-Select Subgrade Material.

D. Compaction requirements: Contractor shall perform compaction testing in accordance with SUDAS 2010, 3.09 and provide results to Consultant for approval. All fill that is placed shall be constructed using moisture and density control. Contractor must use the services of an independent testing laboratory as approved by the Consultant. The compaction requirements shall be no less than 90% of maximum Standard Proctor Density per ASTM D 698.

E. Moisture Content and Density: 1. Ensure that moisture content falls within a range between plus four percent (4%) to minus two percent (2%) of optimum moisture. 2. Compact cohesive soils to no less than 90% of maximum Standard Proctor Density; and cohesionless soils to no less than 70% of Relative Density.

F. Testing: Determine laboratory density of material according to ASTM D 698 or AASHTO T 99 (Standard Proctor Density) or ASTM D 4253 and ASTM D 4254 (Maximum and Minimum Index Density for Cohesionless Soils). Provide at least one analysis for each material type used unless provided by the Consultant. Perform in-place field density and moisture testing according to ASTM D 6938 (nuclear) or ASTM D 1556 (sand cone) and ASTM D 2216 (moisture content). Provide one test per lift per 150 feet. If section is less than 300 feet, perform at least two tests per lift. Test only locations selected by the Consultant. The Consultant may require additional testing if noncompliance or change in conditions occur. Test Failure: Rework, recompact, and retest as necessary until required compaction is achieved.

G. All excavations shall be backfilled with acceptable material free and clear of deleterious material and compacted using either Standard Demolition Compaction or Special Demolition Compaction and further described as follows:

1. Standard Demolition Compaction.

a. Soil shall be placed in horizontal layers not over twelve (12) inches in loose thickness. The layers shall be compacted by hydraulic plate tamper or sheepsfoot type soil compaction roller.

2. Special Compaction Rollers

a. Sheepsfoot type rollers shall consist of one or more drums having studs or feet. The roll shall be loaded so that not less than 2000 psi is exerted on a single row of feet parallel to the axle of the drum.

H. Contractor shall provide for a minimum depth of 2-inches of topsoil over the excavated area. Contractor shall use suitable topsoil of uniform quality, free from hard clods, roots, sod, stiff clay, hard pan, stones larger than 1 inch, lime cement, ash, slag, concrete, tar residue, tarred paper, boards, chips, sticks or any undesirable material.

I. Excavation must be backfilled and graded to maintain positive drainage immediately after demolition and excavation phases are completed.

J. Excavation areas shall not sit empty nor allow stormwater to collect in excavated areas.

3.03 GRADING

A. 2” topsoil shall be placed and fine graded to match existing grade at edges of the site.

B. Grade shall be completed to maintain positive drainage.

C. Contractor shall employ hand labor where the use of power machinery is unsafe or unable to produce a finished job. Hand labor shall be used to clean the site of any debris.

3.04 SEEDING

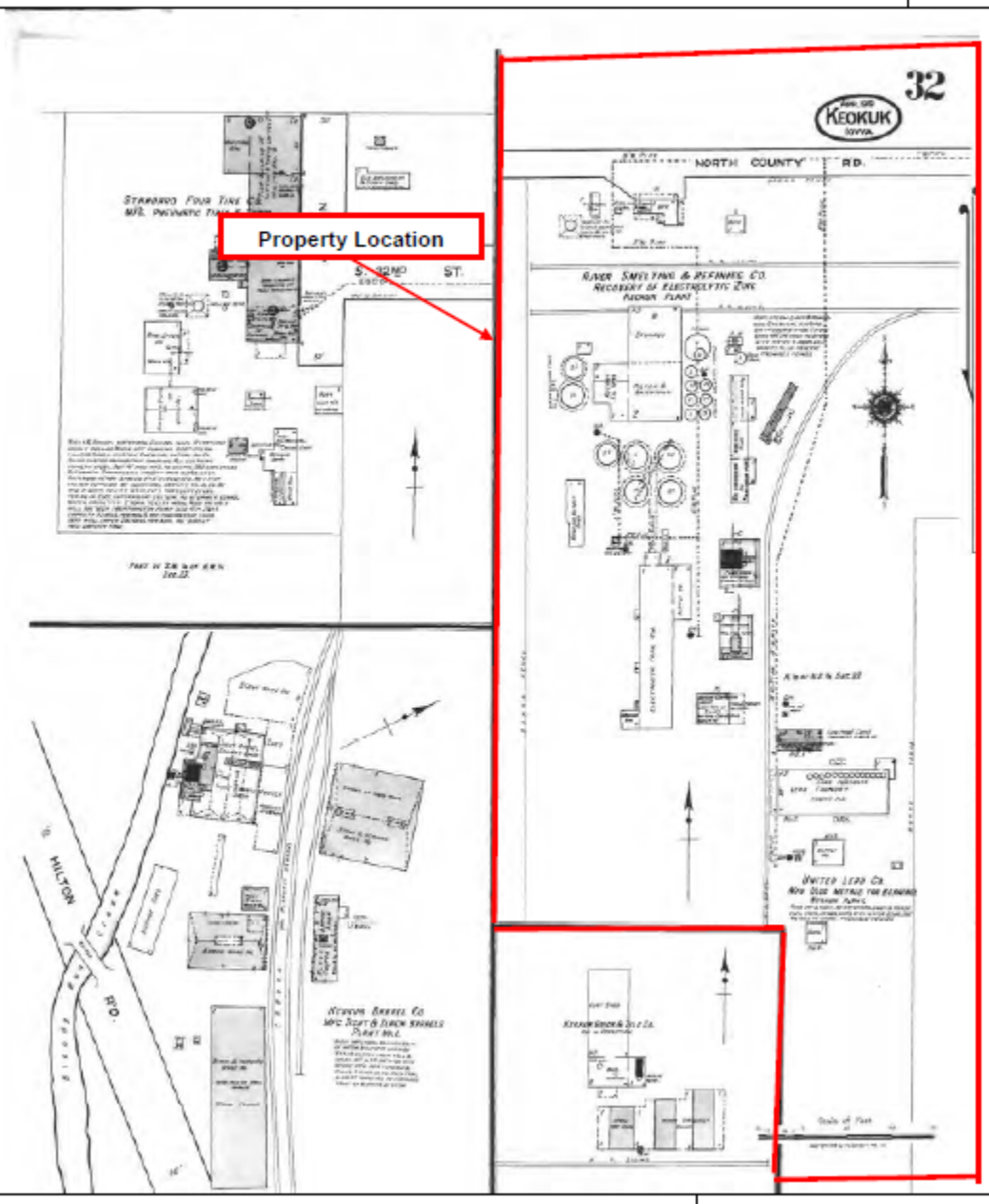
A. Refer to SUDAS.

END OF SECTION

APPENDIX 1 – Historic Site Plans

Date: 1919

North



Sandborn Fire Insurance Map

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa 52632

IMPACT7G

Elkem Site Overview Image 1952

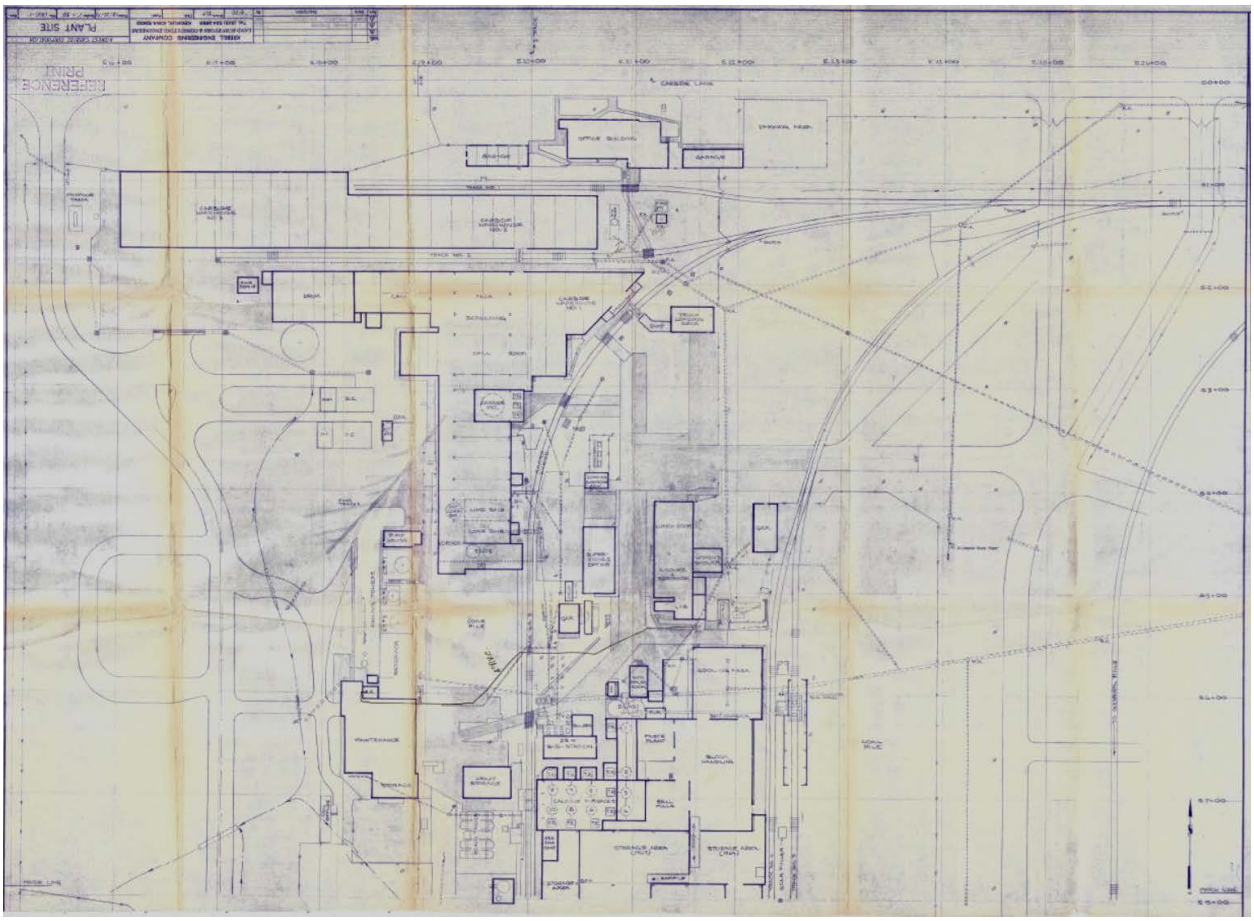
Date: 1963

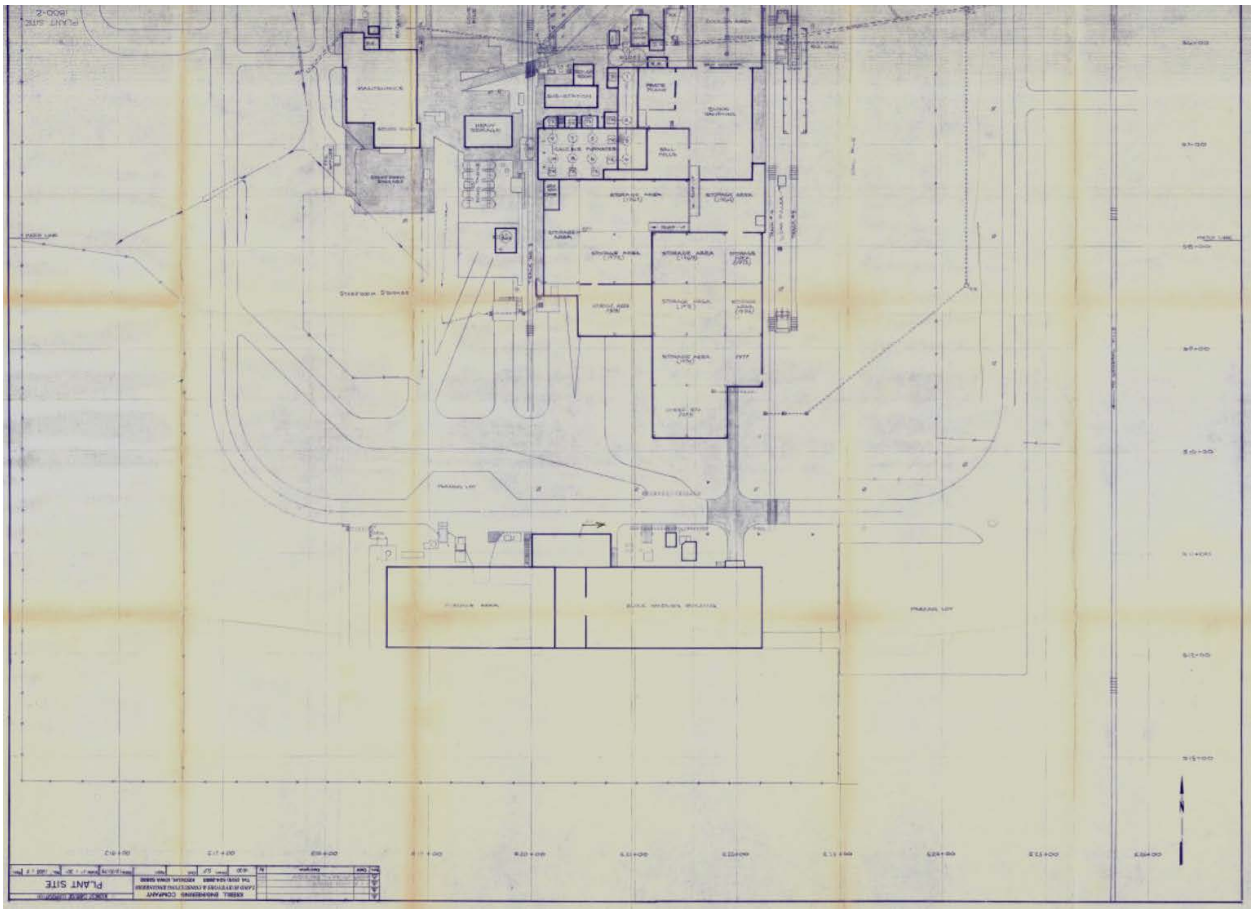
North

Historical Aerial Photograph

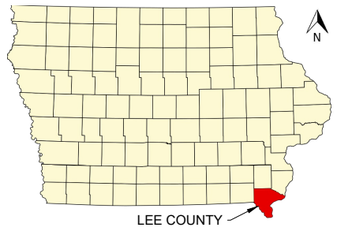
Elkem Carbide
365 Carbide Lane
Keokuk, Iowa 52632

IMPACT7G


REFERENCE PRINT
PLANT SITE



APPENDIX 2 – Updated Bid Plans



STATE COUNTY MAP

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com

CITY OF KEOKUK

PLANS OF PROPOSED IMPROVEMENT FOR THE

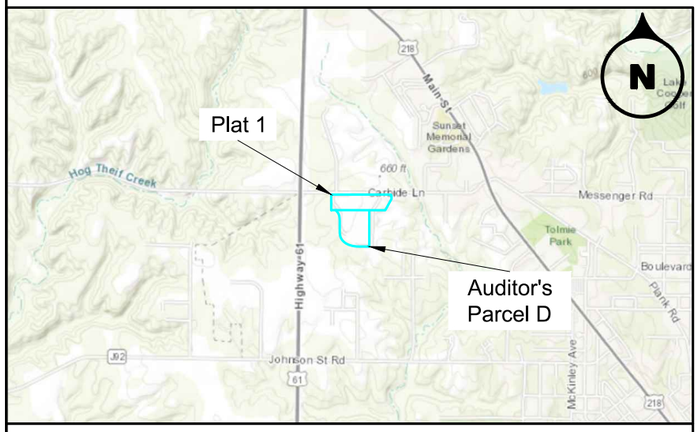
DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D) AT

365 CARBIDE LANE
KEOKUK, IOWA 52632

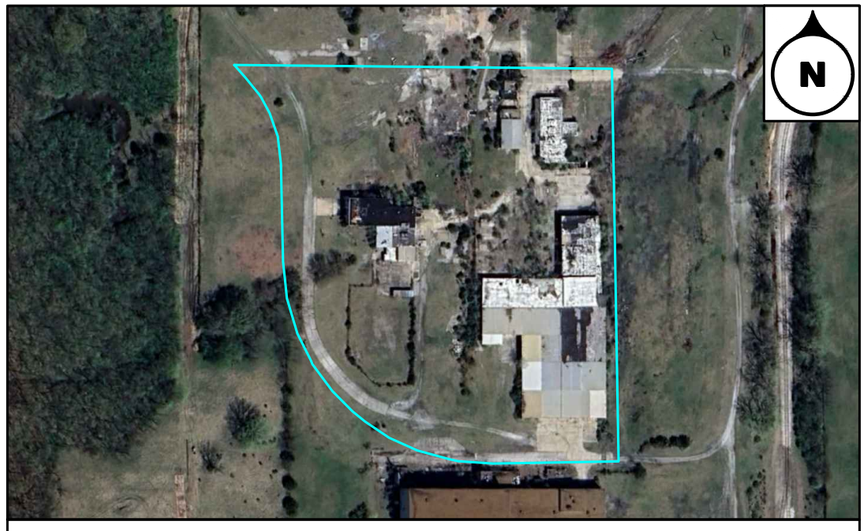
INDEX OF SHEETS	
NO.	DESCRIPTION
A SHEETS	**COVER SHEET**
A.001	COVER SHEET
C SHEETS	**GENERAL NOTES AND SITE INFORMATION**
C.001	GENERAL NOTES
C.002A	ESTIMATED QUANTITIES AND ESTIMATE REFERENCE SHEET
C.002B	ESTIMATED QUANTITIES AND ESTIMATE REFERENCE SHEET
C.100	DEMOLITION SITE PLAN MAP
C.101	SITE UTILITIES MAP
C.102	ELEVATIONS AND STORMWATER POLLUTION PREVENTION PLAN
C.103A	SITE PHOTOS
C.103B	SITE PHOTOS
C.104	SITE ACCESS AND FENCE IMPROVEMENTS MAP

EMERGENCY TELEPHONE NUMBERS

KEOKUK POLICE DEPARTMENT	(319) 524-2741
KEOKUK FIRE DEPARTMENT	(319) 524-5225
LEE COUNTY HEALTH DEPARTMENT	(319) 372-5225
IOWA ONE CALL	(800) 292-8989
CITY OF KEOKUK	(319) 524-2050



VICINITY MAP MAP NOT TO SCALE



LOCATION MAP MAP NOT TO SCALE

GOVERNING SPECIFICATIONS

THE 2026 EDITION OF THE *IOWA STATEWIDE URBAN DESIGN AND SPECIFCATIONS FOR PUBLIC IMPROVEMENTS.*
MUTCD 2009, AS ADOPTED BY DEPARTMENT OF TRANSPORTATION *(WITH EXCEPTIONS SPECIFIED BY IOWA ADMINISTRATIVE CODE 761-IAC 130.1)*
ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES SHALL BE COMPLIED WITH DURING THE PROJECT.

UNCERTAINTIES CONCERNING UNDERGROUND CONDITIONS

INFORMATION CONCERNING EXISTING UTILITIES WAS OBTAINED PRIMARILY FOR DESIGN PURPOSES. THESE DATA ARE KNOWN TO BE INCOMPLETE AND IN SOME INSTANCES INACCURATE. THE CONTRACTOR SHALL REGARD THESE DATA AS QUESTIONABLE UNTIL SUBSTANTIATED BY THEIR OWN INVESTIGATIONS.

ENGINEER CONTACT INFORMATION

EOCENE ENVIRONMENTAL GROUP
TRACY WARNER, P.E.
(515) 858-7665
TWARNER@EOCENE.COM

LICENSED PROFESSIONAL ENGINEER
Licensed
16337
Tracy L.
Warner
IOWA

I HEARBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

TRACY L. WARNER, P.E. IOWA LICENSE NO. 16337
SIGNATURE 3/5/26 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2027
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY

Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: COVER SHEET

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD | CHECKED BY: TW | DATE: 3/4/2026
ACTIVITY ID:
SHEET: A.001
FILE NO.

DEMOLITION NOTES

1. ALL SITE WORK SHALL BE IN ACCORDANCE WITH THE SUDAS SPECIFICATIONS - 2026 EDITION, AND THE GENERAL SUPPLEMENT TO THE 2026 SUDAS DESIGN MANUAL. SPECIFICATION MANUALS CAN BE ORDERED FROM THE INSTITUTE FOR TRANSPORTATION - ATTN. BETH RICHARDS, 2711 SOUTH LOOP DRIVE, SUITE 4700, AMES, IOWA 50010-8664, PHONE: 515-294-2869. SPECIFICATIONS CAN ALSO BE VIEWED AT SUDAS WEB SITE (WWW.IOWASUDAS.ORG). CONTRACTOR SHALL HAVE A MINIMUM OF ONE SET OF PLANS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.

2. COORDINATE WORK AND COOPERATE WITH THE CITY OF KEOKUK AND THE CITY'S CONSULTANT.

3. LOCATION OF EXISTING UTILITIES IS APPROXIMATE BASED ON OLD PLANS, PHYSICAL LOCATES, AND UTILITY MAPPING. VERIFY LOCATION OF EXISTING UTILITIES WITHIN THE LIMITS OF THE PROJECT BOUNDARY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES IN SERVICE PRIOR TO AND DURING CONSTRUCTION. THERE MAY BE BURIED UTILITIES NOT SHOWN ON PLANS.

4. CONTRACTOR SHALL COORDINATE WITH PUBLIC AND PRIVATE UTILITIES FOR TIMELY DISCONNECTION OF SERVICE PRIOR TO INITIATING DEMOLITION. WATER AND SANITARY SEWER HAS BEEN DISCONNECTED BY THE UTILITY. CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL UTILITY INFRASTRUCTURE FROM THE PROJECT AREA, UNLESS AUTHORIZED BY THE CITY OF KEOKUK. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL UTILITY WORK.

5. ANY UTILITIES DAMAGED DURING DEMOLITION THAT WERE TO REMAIN SHALL BE REPAIRED AT NO COST TO CITY OF KEOKUK.

6. ALL EXISTING MONITORING WELLS SHALL BE PROTECTED THROUGHOUT CONSTRUCTION.

7. ALL EXISTING PHYSICAL FEATURES, INCLUDING BUT NOT LIMITED TO, VEGETATION, BUILDINGS, FENCES, AND PAVEMENTS ARE TO BE REMOVED FROM SITE IN ACCORDANCE WITH SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

8. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS TO REMOVE AND PROPERLY DISPOSE OF SIDEWALKS, STEPS, CURBS, DRIVEWAYS, AND STRUCTURES (INCLUDING BOTH ABOVE GROUND AND BELOW GROUND ELEMENTS).

8. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS TO REMOVE FUEL TANKS, SEPTIC TANKS, CISTERNS, AND ANY OTHER UNDERGROUND FACILITIES ENCOUNTERED AND TO PROPERLY DISPOSE OF ANY LIQUIDS OR PRODUCTS CONTAINED WITHIN THESE ITEMS.

9. IF UNDERGROUND STORAGE TANKS ARE ENCOUNTERED, CONTACT LISA NIEDERMAYER AT LISA.NIEDERMAYER@DNR.IOWA.GOV. IF PETROLEUM CONTAMINATION IS ENCOUNTERED CONTACT TAMMY VANDER BLOEMEN AT TAMMY.VANDER_BLOEMEN@DNR.IOWA.GOV.

10. PROJECT SITE SHALL BE EXCAVATED TO MINIMUM TWO FEET BELOW EXISTING ELEVATION WITHIN THE SOIL REMOVAL AREA. CLEAN SOIL SHALL BE IMPORTED TO RETURN SITE TO PRE-CONSTRUCTION ELEVATIONS AS PART OF SITE RESTORATION, PER SUDAS.

11. GREAT RIVER REGIONAL WASTE AUTHORITY IN FORT MADISON, IA IS THE ARRANGED DISPOSAL SITE FOR CONTAMINATED SOILS AND WILL PROVIDE CLEAN IMPORT SOIL. CONTRACTORS ARE RESPONSIBLE FOR PROVIDING EXCAVATION AND HAULING EQUIPMENT TO LOAD, TRANSPORT, UNLOAD, AND SPREAD CLEAN IMPORTED SOILS.

12. CONTRACTOR SHALL COORDINATE WORK WITH GREAT RIVER REGIONAL WASTE AUTHORITY.

13. ALL EXCAVATED CONTAMINATED SOILS SHALL BE PLACED DIRECTLY INTO TRANSPORT VEHICLES. NO STOCKPILING OF CONTAMINATED SOILS IS ALLOWED.

14. ALL TRANSPORT VEHICLES TRANSPORTING CONTAMINATED SOILS MUST BE COVERED PRIOR TO LEAVING THE SITE.

15. CONTRACTORS SHALL OBTAIN ALL STATE AND FEDERAL PERMITS REQUIRED FOR EXECUTING OF THE WORK INCLUDING NOTIFICATIONS TO THE IOWA DNR ACCORDING TO 40 CFR 61.145. CONTRACTOR SHALL PAY ALL PERMIT FEES.

16. PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR SHALL INSPECT THE SITE FOR ITS CHARACTER AND THE TYPE OF STRUCTURES TO BE DEMOLISHED. THE CITY ASSUMES NO RESPONSIBILITY FOR THE CONDITION OF THE EXISTING BUILDING AND OTHER PROPERTY WITHIN THE DEMOLITION AREA, OR THE CONDITION OF THE PROPERTY BEFORE OR AFTER THE SOLICITATIONS FOR PROPOSALS.

17. CONTRACTOR SHALL PAY ALL DISPOSAL COSTS RELATED TO DISPOSAL OF SPECIALITY ITEMS, SUCH AS HOUSEHOLD HAZARDOUS WASTES, APPLIANCES, YARD WASTES, OR ELECTRONICS. NOTE: HAZARDOUS WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH SECTION 02 81 00 OF THE SPECIFICATIONS.

18. CONTRACTOR SHALL PRESERVE ALL MONUMENTS, STAKES, REFERENCE POINTS, AND BENCHMARKS. IN CASE OF DESTRUCTION BY CONTRACTOR'S NEGLIGENCE OR CARELESSNESS, THEY WILL BE CHARGED WITH THE RESULTING EXPENSE OF REPLACEMENT AND RESPONSIBILITY FOR ANY MISTAKES OR LOSS OF TIME CAUSED THEREBY.

19. CONTRACTOR SHALL PREVENT ENTRY OF MUD, DIRT, DEBRIS, AND OTHER MATERIAL INTO EXISTING SEWERS. SHOULD MUD, DIRT, DEBRIS, OR OTHER MATERIAL ENTER THE EXISTING SEWERS AND WATERWAYS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY AND CITY'S CONSULTANT. CONTRACTOR SHALL CLEAN AT NO COST TO THE CITY OF KEOKUK.

20. CONTRACTOR AND ALL SUBCONTRACTORS ARE CONSIDERED AS A GENERAL PERMIT NO. 2 CO-PERMITTEE AS PART OF THE SIGNED CONTRACT FOR THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND REMOVING REQUIRED STORM WATER CONTROLS, AND ADHERING TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

21. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY CITY OF KEOKUK PERMITS.

22. EXCAVATIONS SHALL NOT SIT EMPTY OR ALLOW ACCUMULATION OF STORM WATER.

23. CONTRACTOR TO SPECIFY WORK HOURS TO THE CITY OF KEOKUK PRIOR TO COMMENCING WORK. NOTICE TO WORK OUTSIDE THESE HOURS OR ON HOLIDAYS MUST BE PRESENTED TO THE CITY OF KEOKUK AND THE CITY'S CONSULTANT AT LEAST 48 HOURS IN ADVANCE AND REQUIRES WRITTEN PERMISSION FROM THE CITY OF KEOKUK OR THEIR DESIGNEE.

24. FINAL GRADING AND SEEDING: PLACE FILL TO MATCH SITE ELEVATIONS AT EDGES OF PROJECT AREA AND HAVE UNIFORM SLOPE TO PROVIDE POSITIVE DRAINAGE. CONTRACTOR IS RESPONSIBLE FOR SEEDING. NO MOW, LOW MAINTENANCE FINE FESCUE SEED SHALL BE USED. CONTRACTOR SHALL ADD ANNUAL OATS AND RYE SEED TO SEEDING MIX FOR SHORT TERM EROSION CONTROL.

LEGEND — MAP NOT TO SCALE

- Property Boundary
- PROPOSED BUILDING REMOVALS
- (1) BUILDING LABELS

25. CONTRACTOR SHALL UTILIZE METHODS AND PRACTICES OF CONSTRUCTION TO MINIMIZE ATMOSPHERIC POLLUTION AND ELIMINATE DUST IN FULL OBSERVANCE OF AGENCY REGULATIONS. THE CITY OF KEOKUK OR THEIR DESIGNEE RESERVES THE RIGHT TO STOP CONTRACTOR'S OPERATIONS IF DUST BECOMES A PROBLEM ON THE PROJECT AND REQUIRE CONTRACTOR TO SUBMIT A REVISED OPERATIONS PLAN TO ELIMINATE DUST.

26. TRANSPORT VEHICLES MUST BE DECONTAMINATED IN A DESIGNATED DECONTAMINATION AREA PRIOR TO LEAVING THE SITE. DECONTAMINATION SHALL INCLUDE THE REMOVAL OF MATERIAL ON THE TIRES AND AXLES OF THE VEHICLE AND ANY OTHER MATERIAL ON THE VEHICLES AS A RESULT OF LOADING OPERATIONS.

27. SEDIMENT TRACK OUT FROM THE SITE IS PROHIBITED. ANY SEDIMENT TRACK OUT ONTO CARBIDE LANE SHALL BE REMOVED IMMEDIATELY TO PREVENT THE SPREAD OF CONTAMINATED SOIL AND DISPOSED OF AS CONTAMINATED SOIL.

28. CONTRACTOR MAY PROVIDE ON-SITE CONCRETE CRUSHING AND REUSE CLEAN AGGREGATE-SIZED MATERIALS ALONG GRAVEL DRIVE AREAS, AS APPROVED BY THE CITY'S CONSULTANT.

29. ADDENDUM 1 - ALTERNATE STOCKPILE LOCATIONS FROM THOSE DESCRIBED ON PLANS MAY BE USED AS APPROVED BY THE CITY OF CITY'S CONSULTANT. CLEAN FILL STOCKPILE MUST BE SURROUNDED BY SILT FENCE.

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY
	ADDENDUM 1	3/19/26	SD/TW

Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: GENERAL NOTES

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD | CHECKED BY: TW | DATE: 3/4/2026
ACTIVITY ID:
SHEET: C.001
FILE NO.

ESIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1	**MOBILIZATION**
	THIS WORK SHALL CONSIST OF PREPARATORY WORK AND OPERATIONS, INCLUDING, BUT NOT LIMITED TO, THE MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES, ETC. TO AND FROM THE PROJECT AREA OR COSTS INCURRED PRIOR TO BEGINNING WORK ON THE PROJECT. PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE PER LUMP SUM. PAYMENT WILL BE MADE AS DESCRIBED IN SUDAS SPECIFICATIONS DIVISION 11.
2	**CONSTRUCTION SURVEY**
	CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION SURVEY PER SUDAS SPECIFICATIONS DIVISION 11. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO SET/LOCATE AND PROTECT SURVEY CONTROL AND REFERENCE POINTS. CONTRACTOR SHALL SET PROJECT SITE PERIMETER LIMITS ON-SITE TO PREVENT CONTAMINATED SOILS BEING DISTURBED ON ADJACENT AREAS NOT INCLUDED ON THIS PROJECT. SURVEY CONTROL SHALL BE SET FOR EXISTING SITE ELEVATION CONTROL TO ACHIEVE SITE RESTORATION ELEVATIONS AND DRAINAGE PATTERNS BACK TO PRE-PROJECT CONDITIONS. **ADDENDUM 1: A LANDXML FILE IS PROVIDED AS PART OF THIS ADDENDUM AND CAN BE OBTAINED FROM EOCENE ENVIRONMENTAL GROUP. THE LANDXML DATA IS IN COORDINATE SYSTEM EPSG CODE 6465, NAD83 (2011) IOWA STATE PLANES, SOUTH, US SURVEY FOOT AND VERTICAL DATUM NAVD88.** **THESE LANDS HAVE BEEN SUBDIVIDED, AS SHOWN ON THE PROVIDED FINAL PLATS INCLUDED IN APPENDIX 5 OF THE CONTRACT DOCUMENTS. AS PART OF THE SUBDIVISION, SURVEY MONUMENTS HAVE BEEN PLACED AT EACH PROPERTY CORNER. THE CONTRACTOR IS RESPONSIBLE FOR MONUMENT PRESERVATION AND REPLACEMENT, PER SUDAS AND IOWA CODE SECTION 355.6A, AS PART OF THIS BID ITEM.**
3	**CLEARING AND GRUBBING**
	ADDENDUM 1: CLEARING AND GRUBBING SHALL BE COMPLETED FOR ALL VEGETATION WITHIN THE PROJECT AREA. CONTAMINATED SOIL SHALL BE REMOVED FROM ROOT BALL AND PROPERLY DISPOSED OF AS PART OF RESPECTIVE BID ITEM. STUMP REMOVAL IS INCIDENTAL TO CLEARING & GRUBBING. VEGETATION MAY BE MULCHED AND STOCKPILED ON THIS CITY PROPERTY WHERE APPROVED BY CITY'S CONSULTANT.
4	**DEMOLITION**
	ITEM INCLUDES DEMOLITION OF BUILDING STRUCTURES, AS PART OF THIS PROJECT PROPERTY, AS INDICATED ON THE BID PLANS, INCLUDING FOUNDATIONS, UTILITY INFRASTRUCTURE, POLES, AND REMOVING EXISTING EQUIPMENT/MATERIALS WITHIN THE DESIGNATED PROJECT SITE.**STRUCTURAL BACKFILL FOR REMOVED FOUNDATIONS AS PART OF THIS BID ITEM IS INCLUDED**. WATER AND SANITARY SEWER SERVICES HAVE BEEN DISCONNECTED AT RIGHT-OF-WAY. CONTRACTOR TO VERIFY DISCONNECTION OF ALL PUBLIC AND PRIVATE UTILITIES, INCLUDING BUT NOT LIMITED TO GAS AND ELECTRIC. ASBESTOS ABATEMENT HAS BEEN COMPLETED FOR THIS SITE. IF ASBESTOS CONTAINING MATERIALS ARE DISCOVERED, CONSTRUCTION SHALL STOP AND THE CONTRACTOR SHALL NOTIFY THE CITY OR CITY'S CONSULTANT FOR FURTHER ABATEMENT TO TAKE PLACE. BID PACKAGE INCLUDES REMOVAL OF SOILS AND UTILITIES TO AT LEAST TWO FEET BELOW GROUND ELEVATION FOR THE SITE RESTORATION TO LOW MAINTENANCE TURF IN PREPARATION FOR COMMERCIAL/INDUSTRIAL REDEVELOPMENT. EXISTING MONITORING WELLS ARE TO REMAIN AND BE PROTECTED THROUGHOUT DEMOLITION, SOIL REMEDIATION AND RESTORATION. **ADDENDUM 1: BUILDING FOUNDATIONS SHALL BE REMOVED TO MINIMUM DEPTH OF FOUR (4) FOOT BELOW EXISTING GROUND ELEVATION UNLESS OTHERWISE APPROVED BY THE CITY'S CONSULTANT.**
5	**REMOVE EXISTING FENCE AND GATES, ALL STYLES AND MATERIAL**
	ITEM INCLUDES CONTRACTOR REMOVAL OF ALL FENCING, ANY STYLE AND MATERIAL, LOCATED AT VARIOUS LOCATIONS AROUND THE PROJECT AREAS AND AS DESIGNATED ADJACENT TO CARBIDE LANE, AS SHOWN ON PLANS. REMOVAL OF EXISTING GATE(S) ARE INCLUDED IN THIS BID ITEM. COORDINATION WITH CITY'S CONSULTANT RELATED TO FENCE AND GATE REMOVALS IS REQUIRED. THE SITE SHALL BE SECURED AT ALL TIMES. IF TEMPORARY FENCE AND GATE(S) ARE NEEDED, IT IS INCIDENTAL TO THIS ITEM.
6	**DISPOSAL OF CONSTRUCTION WASTE, DEBRIS AND HOUSEHOLD HAZARDOUS MATERIALS**
	ITEM INCLUDES REMOVAL, RECYCLING OR DISPOSAL OF MATERIALS ON-SITE NOT INCLUDED UNDER SPECIFIC BID ITEMS. CONTRACTOR TO SEE BID PLANS WITH SITE IMAGES AND ATTEND MANDATORY PRE-BID MEETING. **ADDENDUM 1: CONTRACTOR IS RESPONSIBLE FOR DISPOSAL FEES ASSOCIATED WITH THIS BID ITEM. CONTRACTOR IS ALSO RESPONSIBLE FOR DISPOSAL OF ALL HOUSEHOLD HAZARDOUS MATERIALS (HHM) FROM THIS SITE AT AN APPROVED HHM DISPOSAL LOCATION. NOTE: GREAT RIVER REGIONAL WASTE AUTHORITY HAS A LIMIT PER MONTH OF HOUSEHOLD HAZARDOUS WASTE MATERIALS THEY ARE ABLE TO RECEIVE, SO IT MAY BE IN THE CONTRACTOR'S BEST INTEREST TO MAKE ALTERNATIVE HHM ARRANGEMENTS.**
7	**PAVEMENT REMOVAL, ANY DEPTH**
	ITEM INCLUDES REMOVAL OF ALL EXISTING PAVEMENT, ANY DEPTH, (NOT ALREADY INCLUDED UNDER SEPARATE BID ITEMS SUCH AS **FORMER** BUILDING FOUNDATIONS AND UTILITY STRUCTURES). SOIL BORINGS INDICATE PAVEMENT AREAS TYPICALLY UNDER 6 INCHES IN DEPTH, HOWEVER CONTRACTOR IS RESPONSIBLE FOR ALL DEPTHS. AREAS GENERALLY INDICATED ON THE BID PLANS, INCLUDE BUT ARE NOT LIMITED TO RAMPS, PARKING LOTS, DRIVES, AND LOADING/STORAGE AREAS. CONTAMINATED SOILS SHALL BE DISPOSED OF SEPARATELY. CONCRETE MAY BE CRUSHED AND RE-USED ON-SITE ALONG DRIVES WITH ACCESS FROM CARBIDE LANE, AS COORDINATED WITH THE CITY OR CITY'S CONSULTANT. CRUSHED CONCRETE SHALL BE FREE OF ALL REINFORCING METALS AND NON-CONCRETE MATERIALS. THIS BID PACKAGE INCLUDES REMOVAL OF ALL MATERIALS ABOVE AND BELOW GROUND FOR THE SITE RESTORATION TO LOW MAINTENANCE TURF IN PREPARATION FOR COMMERCIAL/INDUSTRIAL REDEVELOPMENT. EXISTING MONITORING WELLS ARE TO REMAIN AND BE PROTECTED THROUGHOUT DEMOLITION, SOIL REMEDIATION AND RESTORATION. **ADDENDUM 1: FORMER BUILDING FOUNDATIONS SHALL BE REMOVED TO MINIMUM DEPTH OF FOUR (4) FEET BELOW EXISTING GROUND ELEVATION UNLESS OTHERWISE APPROVED BY THE CITY'S CONSULTANT. SEE UPDATED PLANS AS PART OF THIS ADDENDUM FOR IDENTIFIED FORMER BUILDING FOUNDATION LOCATIONS BASED ON HISTORIC SITE INFORMATION.**
8	**COVER UTILITY STRUCTURE WITH STEEL PLATE**
	ITEM INCLUDES COVERING STORM UTILITY STRUCTURES SUCH AS MANHOLES AND INTAKES WITH 1.5-INCH THICK STEEL PLATE DURING DEMOLITION, SOIL REMEDIATION AND SITE RESTORATION. THE CONTRACTOR MAY PROPOSE ALTERNATIVE MEANS TO PROTECTING STORM INFRASTRUCTURE, WITH APPROVAL REQUIRED BY CITY'S CONSULTANT. REFER TO PLAN SHEETS FOR APPROXIMATE LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS. STEEL PLATES ARE TO BE REMOVED AS PART OF FINAL CONDITIONS FOR THE SITE.
9	**REMOVE CONCRETE STRUCTURE**
	ITEM INCLUDES THE REMOVAL OF CONCRETE STRUCTURES SUCH AS PITS AND VAULTS. REFER TO PLAN SHEETS FOR APPROXIMATE LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF ALL UTILITY SYSTEM INFRASTRUCTURE AND CONFIRMING REMOVAL WITH CITY OR CITY'S CONSULTANT FOR THIS SITE. CONTAMINATED SOILS TO BE DISPOSED OF SEPARATELY. THIS ITEM INCLUDES CLEAN SOIL IMPORTED TO ADEQUATELY BACKFILL WHERE EACH STRUCTURE IS REMOVED. IMPORTED CLEAN SOIL SHALL BE HAULED FROM GREAT RIVER REGIONAL WASTE AUTHORITY, UNLESS OTHERWISE AN ALTERNATIVE SOURCE IS APPROVED BY CITY'S CONSULTANT. PAYMENT FOR THIS REMOVAL ITEM IS PER EACH FOR ALL TYPES AND SIZES OF UNDERGROUND CONCRETE INFRASTRUCTURE REMOVED.
10	**REMOVAL OF CONTAMINATED SOILS, CLASS 10 EXCAVATION, HAULING, AND IMPORT CLEAN SOIL AND RESPREAD (SOURCE PROVIDED)**
	SOIL HAS BEEN IDENTIFIED TO BE CONTAMINATED WITH POLYCYCLIC AROMATIC HYDROCARBONS AND RESOURCE CONSERVATION AND RECOVERY ACT METALS. PROPER DISPOSAL SHALL COMPLY WITH ALL STATE AND FEDERAL REQUIREMENTS. CONTAMINATED SOILS SHALL BE SCREENED TO BE RELATIVELY FREE FROM ITEMS SUCH AS GRAVEL, CONCRETE, AND SOLID WASTE. CONTRACTOR TO COVER AND HAUL CONTAMINATED SOILS TO GREAT RIVER REGIONAL WASTE AUTHORITY IN FORT MADISON. GREAT RIVER REGIONAL WASTE AUTHORITY IN FORT MADISON IS ALSO PROVIDING CLEAN SOIL TO HAUL BACK AS IMPORTED SOIL TO THE PROJECT SITE. THIS SOIL HAS BEEN PROVEN TO BE CLEAN AND SUITABLE FOR IMPORT. CLEAN SOIL MATERIAL FROM GREAT RIVER REGIONAL WASTE AUTHORITY IS AT NO ADDITIONAL COST TO THE PROJECT AS PART OF THIS BID ITEM. CONTRACTOR TO PROVIDE EXCAVATION AND HAULING EQUIPMENT AND LABOR FOR IMPORTING SOIL FROM GREAT RIVER REGIONAL WASTE AUTHORITY TO PROJECT SITE. DIRECT BILLING FROM GREAT RIVER REGIONAL WASTE AUTHORITY SHALL BE SENT TO CITY OF KEOKUK (ATTN: BRIAN CARROLL). IF CONTRACTOR CHOOSES TO DISPOSE OF CONTAMINATED SOIL OR IMPORT SOIL FROM A SITE OTHER THAN GREAT RIVER REGIONAL AUTHORITY, APPROVAL IS REQUIRED BY CITY'S CONSULTANT WHERE COST SHOULD BE CONSIDERED AND IMPORT SOIL SHALL BE TESTED TO PROVE SUITABLE FOR IMPORT ONTO THE SITE. QUANTITY IS ESTIMATED BASED ON 2 FT OF REMOVAL IN EXISTING VEGETATED AREAS AND RESULTING 2 FT OF REMOVAL BELOW PAVEMENTS AND FOUNDATIONS AND 0 FT REMOVAL BELOW RAIL SPURS. **ADDENDUM 1: CONTRACTOR SHALL CONDUCT COMPACTION TESTING ON PLACED IMPORT SOILS USING THE SERVICES OF AN INDEPENDENT TESTING LABORATORY AS APPROVED BY THE CITY'S CONSULTANT. ALL VOIDS AND EXCAVATIONS SHALL BE BACKFILLED AND COMPACTED IN 8-12 INCH LIFTS. COMPACTION REQUIREMENTS PER 2026 SUDAS: 95% OF ASTM D698 MOD FOR STRUCTURAL/ROW AREAS; 90% FOR NON-STRUCTURALAREAS. MAINTAIN MOISTURE CONTENT WITHIN -2% TO + 4% OF OMC.**
11	**TOPSOIL, OFF-SITE**
	ADDENDUM 1: CONTRACTOR IS RESPONSIBLE FOR IMPORTING CLEAN TOPSOIL TO A MINIMUM DEPTH OF **2 INCHES** OVER ALL DISTURBED AREAS TO ACHIEVE SITE RESTORATION. NO TOPSOIL WAS ASSUMED TO BE LOCATED BENEATH EXISTING PAVEMENT BEING REMOVED. CITY'S CONSULTANT IS REQUIRED TO CONFIRM ACCEPTABILITY OF TOPSOIL QUALITY. TOPSOIL TO BE SPREAD ABOVE ALL IMPORTED SOIL.
12	**PROTECT EXISTING MONITORING WELLS**
	ITEM INCLUDES MAINTAINING APPROX. 1 FOOT DIAMETER AREA OF EXISTING SUBSTRATE AROUND EACH EXISTING MONITORING WELL AS SHOWN ON THE PLANS. CONTRACTOR SHALL PLACE A REFLECTIVE TRAFFIC DRUM WEIGHTED TO PREVENT DISPLACEMENT, OVER EACH TO PROTECT THE EXISTING MONITORING WELLS THROUGHOUT ALL ASPECTS OF THE PROJECT. CONTRACTOR MAY PROPOSE TO ENGINEER ALTERNATIVE METHODS OF PROTECTING MONITORING WELLS, WHICH ARE TO REMAIN IN PLACE FOLLOWING PROJECT COMPLETION.
13	**STABILIZED CONSTRUCTION EXIT**
	PER SUDAS AND FIGURE 9040.120. ITEM IS ESTIMATED TO BE 20 FT WIDE BY 100 FT IN LENGTH TO PREVENT TRACK-OUT OF CONTAMINATED SOILS. IF TRACK-OUT OCCURS , CITY OR CITY'S CONSULTANT MAY DIRECT THIS EXIT TO BE EXTENDED, INCIDENTAL TO THIS BID ITEM. ITEM ALSO INCLUDES TRUCK WASHING AS NEEDED TO PREVENT TRACK-OUT OF CONTAMINATED SOILS.
14	**WATTLE, STRAW, 12-INCH**
	ITEM IS INCLUDED TO ESTABLISH A UNIT PRICE. ITEM TO BE USED TO ADDRESS EROSION THAT MAY DEVELOP DURING CONSTRUCTION, WHERE DIRECTED BY ENGINEER. BID QUANTITY IS AN ASSUMED QUANTITY AND NOT EXPLICITLY SHOWN IN THE EROSION CONTROL PLAN. PAY QUANTITY WILL BE MEASURED PER LF OF STRAW WATTLES PLACED AND VERIFIED BY RECEIPT QUANTITY. ITEM SHALL INCLUDE INSTALLATION AND MAINTENANCE OF WATTLES.
15	**SILT FENCE**
	ITEM IS INCLUDED TO ESTABLISH A UNIT PRICE. ITEM TO BE USED TO ADDRESS EROSION THAT MAY DEVELOP DURING CONSTRUCTION, WHERE DIRECTED BY ENGINEER. BID QUANTITY IS AN ASSUMED QUANTITY AND NOT EXPLICITLY SHOWN IN THE EROSION CONTROL PLAN. PAY QUANTITY WILL BE MEASURED PER LF OF SILT FENCE PLACED AND VERIFIED BY RECEIPT QUANTITY. REFER TO EROSION CONTROL & SEEDING SHEETS FOR GENERAL LOCATIONS. ITEM INCLUDES MAINTENANCE OF SILT FENCE. SILT FENCE TO REMAIN IN PLACE AS FINAL STABILIZATION OF SITE IS ACHIEVED.

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY
1	ADDENDUM 1	3/19/26	SD/TW

Eocene SM Environmental Group
eocene.com
515.473.6256
5930 GRAND AVENUE
WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: ESTIMATED QUANTITIES AND ESTIMATE REFERENCE SHEET

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD
CHECKED BY: TW
DATE: 3/19/2026
ACTIVITY ID:
SHEET: C.002A
FILE NO.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
16	**SEEDING, FERTILIZING, AND MULCHING (NO MOW, LOW MAINTENANCE FINE FESCUE BLEND)**
	ITEM IS INCLUDED FOR RESTORATION OF DISTURBED AREAS AS SHOWN ON THE PLANS. OVERALL SITE RESTORATION IS TO INCLUDE NO MOW, LOW MAINTENANCE FINE FESCUE TURF IN PREPARATION FOR COMMERCIAL/INDUSTRIAL REDEVELOPMENT. SEED BLEND SHALL INCLUDE TEMPORARY ANNUAL EROSION CONTROL SPECIES, INCLUDING OATS AND RYE. COMPENSATION WILL NOT BE MADE FOR PLACEMENT OF ADDITIONAL SEED WITHOUT PRIOR APPROVAL OF CITY OR CITY'S CONSULTANT. COMPENSATION WILL NOT BE MADE FOR OVERSEEDING OR FOR SEEDING ADDITIONAL DISTURBED AREAS BEYOND THE CONSTRUCTION LIMITS WITHOUT PRIOR APPROVAL OF THE CITY OR CITY'S CONSULTANT. SEEDBED PREPARATION IS INCLUDED AS PART OF THIS BID ITEM. EXISTING ON-SITE MULCH MAY BE INCORPORATED INTO THIS OPERATION WITH APPROVAL FROM CITY OR CITY'S CONSULTANT. ON-SITE MULCH SHALL BE SEPARATED FROM CONTAMINATED SOILS.
17	**SEEDING WARRANTY**
	ITEM INCLUDES THE FURNISHING OF ALL NECESSARY LABOR, EQUIPMENT, AND MATERIALS TO PERFORM AND COMPLETE ALL ESTABLISHMENT AND MAINTENANCE ACTIVITIES DURING THE THREE-YEAR WARRANTY PERIOD. ITEM ALSO INCLUDES PROVIDING A THREE-YEAR WARRANTY BOND TO COMMENCE UPON SUBSTANTIAL COMPLETION. WARRANTY SHALL COVER ALL PERMANENT, LOW MAINTENANCE SEEDING.
18	**INSTALL 6 FT SECURITY FENCE WITH VEHICULAR GATE, COMMERCIAL/INDUSTRIAL GALVANIZED CHAINLINK, ALONG CARBIDE LANE**
	ITEM INCLUDES NEW 6 FT GALVANIZED, CHAINLINK SECURITY FENCE AND GATE ALONG CARBIDE LANE TO THE PROPERTY EXTENTS. VEHICULAR GATES SHALL BE PLACED AT ACCESS AS SHOWN ON THE PLANS WITH CONTRACTOR HAVING CONTROLLED KEY ACCESS TO THE SITE. KEYS SHALL BE PROVIDED TO BRIAN CARROLL (CITY OF KEOKUK PUBLIC WORKS) AND CITY'S CONSULTANT RESPONSIBLE FOR CONSTRUCTION SITE OBSERVATION. SUDAS DIVISION 9, SECTION 9060. SECURITY FENCE AND GATE LOCATIONS SHALL BE COORDINATED WITH CITY'S CONSULTANT. PERMANENT FENCE TO REMAIN IN PLACE FOLLOWING PROJECT CLOSE-OUT TO PROVIDE SITE SECURITY.

ESTIMATED PROJECT QUANTITIES

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT
1	MOBILIZATION	1	LS
2	CONSTRUCTION SURVEY	1	LS
3	CLEARING AND GRUBBING	1.25	AC
4	DEMOLITION	1	LS
5	REMOVE EXISTING FENCE AND GATES, ALL STYLES AND MATERIAL	700	LF
6	DISPOSAL OF CONSTRUCTION WASTE, DEBRIS AND HOUSEHOLD HAZARDOUS MATERIALS	1	LS
7	PAVEMENT REMOVAL, ANY DEPTH	7,050	SY
8	COVER UTILITY STRUCTURE WITH STEEL PLATE	9	EA
9	REMOVE CONCRETE STRUCTURE	3	EA
10	REMOVAL OF CONTAMINATED SOILS, CLASS 10 EXCAVATION, HAULING, AND IMPORT CLEAN SOIL AND RESPREAD (SOURCE PROVIDED)	**21,560**	TON
11	TOPSOIL, OFF-SITE	**2,375**	CY
12	PROTECT EXISTING MONITORING WELLS	16	EA
13	STABILIZED CONSTRUCTION EXIT	222	SY
14	WATTLE, STRAW, 12-INCH	175	LF
15	SILT FENCE	2,300	LF
16	SEEDING, FERTILIZING, AND MULCHING (NO MOW, LOW MAINTENANCE FINE FESCUE BLEND)	9.44	AC
17	SEEDING WARRANTY	1	LS
18	INSTALL 6 FT SECURITY FENCE WITH VEHICULAR GATE, COMMERCIAL/INDUSTRIAL GALVANIZED CHAINLINK, ALONG CARBIDE LANE	1,200	LF

ALTERNATE ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
A	**ADDITIONAL REMOVAL OF CONTAMINATED SOILS AND IMPORT CLEAN SOIL (SOURCE PROVIDED)**
	THIS ITEM IS FOR ADDITIONAL REMOVAL, IMPORT, AND PLACEMENT BEYOND BASE BID ITEM FOR SAME WORK.
B	**REMOVE RAILROAD SPUR**
	ITEM INCLUDES REMOVAL OF EXISTING RAILROAD SPUR AND NON-AGGREGATE ASSOCIATED MATERIALS AS DESIGNATED ON THE BID PLANS, AT A MINIMUM OF 2 FT DEEP. PAYMENT WILL BE MADE PER LINEAR FOOT. CONFIRMATION OF REMOVAL LIMITS SHALL BE AGREED UPON WITH CITY OR CITY'S CONSULTANT FOR THIS SITE. RAILROAD SPUR AGGREGATE MAY BE RE-USED OR SPREAD ON-SITE AS COORDINATED WITH CITY OR CITY'S CONSULTANT. 2 FT OF IMPORTED SOIL INCLUDING 2 INCHES OF TOPSOIL SHALL BE PLACED ABOVE THIS AREA.
C	**REMOVE GRAVEL AND PAVEMENT DRIVE AND REPLACE WITH CLEAN GRAVEL**
	ITEM INCLUDES REMOVAL OF EXISTING GRAVEL AND PAVEMENT ALONG DRIVE THROUGH THE SITE, IF TESTING DETERMINES CONTAMINATION WITHIN THE DRIVE MATERIALS. WORK ALSO INCLUDES REPLACEMENT OF GRANULAR CRUSHED STONE OR GRAVEL ROAD MATERIALS FOR REPLACING THE REMOVED MATERIALS.

ALTERNATE ESTIMATED PROJECT QUANTITIES

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT
A	ADDITIONAL REMOVAL OF CONTAMINATED SOILS AND IMPORT CLEAN SOIL (SOURCE PROVIDED)	500	TON
B	REMOVE RAILROAD SPUR	1,193	LF
C	REMOVE GRAVEL AND PAVEMENT DRIVE AND REPLACE WITH CLEAN GRAVEL	2,300	SY

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY
1	ADDENDUM 1	3/19/26	SD/TW

Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: ESTIMATED QUANTITIES AND ESTIMATE REFERENCE SHEET

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD
CHECKED BY: TW
DATE: 3/19/2026
ACTIVITY ID:
SHEET: C.002B
FILE NO.

Remove Pavement

Protect all existing monitoring wells

Remove Transformer with fuel tank

Remove Transformer

5
900 SF

Remove fire hydrant

Remove Poles

Construction Site Entrance Road - to Carbide Lane

Remove Fence

4
2,370 SF

3
5,600 SF

Protect rail line

Remove Pavements and Foundations

Remove tank

Remove vault

Remove Poles/Bases

Remove tank

Remove water utility

Remove vault

6
10,500 SF

Clean Fill Stockpile Location

Proposed Clear and Grub Mulch Stockpile Location

Remove Fence

Remove Former Building Foundations

7
580 SF

BID ALTERNATE B Remove rail spur

9
52,250 SF

Remove tank

Remove Pavements and Foundations

Proposed Crushed Concrete Stockpile Location

BID ALTERNATE B Remove rail spur

BID ALTERNATE G Remove gravel and pavement drive, pending City's Consultant test results.

Cover all existing stormwater drains with steel plates

N

HORIZONTAL SCALE: 1" = 80'

0 20 40 80

SCALES INTENDED FOR 11"x17" SIZE DRAWINGS

LEGEND

- Property Boundary
- Existing Railroad
- Existing Fence
- PROPOSED BUILDING REMOVALS
- PROPOSED PAVEMENT REMOVALS
- PROPOSED FOUNDATION REMOVALS
- BID ALTERNATE C - GRAVEL & PAVEMENT REMOVAL
- (1) BUILDING LABELS
- Existing Manhole
- Existing Storm Sewer Intake
- Existing Transformer
- Existing Utility Pole, Light Pole, or Base
- Existing Fire Hydrant
- Existing Utility Vault
- Existing Monitoring Wells
- Existing Storage Tank
- PROPOSED STOCKPILE LOCATIONS

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY
1	ADDENDUM 1	3/19/26	SD/TW

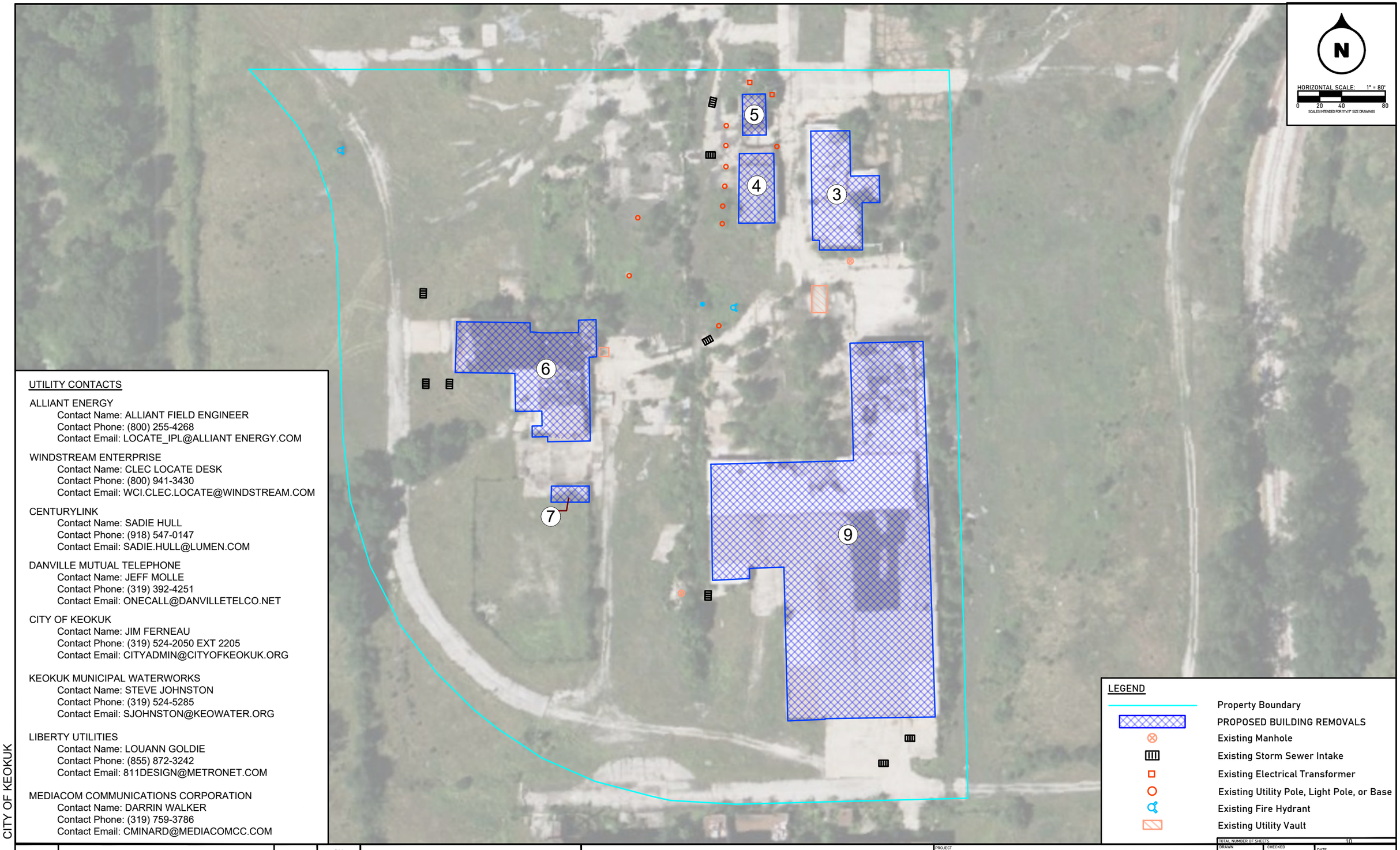
Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: DEMOLITION SITE PLAN MAP

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD
CHECKED BY: TW
DATE: 3/19/2026
ACTIVITY ID:
SHEET: C.100
FILE NO.



UTILITY CONTACTS

ALLIANT ENERGY
Contact Name: ALLIANT FIELD ENGINEER
Contact Phone: (800) 255-4268
Contact Email: LOCATE_IPL@ALLIANT ENERGY.COM

WINDSTREAM ENTERPRISE
Contact Name: CLEC LOCATE DESK
Contact Phone: (800) 941-3430
Contact Email: WCI.CLEC.LOCATE@WINDSTREAM.COM

CENTURYLINK
Contact Name: SADIE HULL
Contact Phone: (918) 547-0147
Contact Email: SADIE.HULL@LUMEN.COM

DANVILLE MUTUAL TELEPHONE
Contact Name: JEFF MOLLE
Contact Phone: (319) 392-4251
Contact Email: ONECALL@DANVILLETELCO.NET

CITY OF KEOKUK
Contact Name: JIM FERNEAU
Contact Phone: (319) 524-2050 EXT 2205
Contact Email: CITYADMIN@CITYOFKEOKUK.ORG

KEOKUK MUNICIPAL WATERWORKS
Contact Name: STEVE JOHNSTON
Contact Phone: (319) 524-5285
Contact Email: SJOHNSTON@KEOWATER.ORG

LIBERTY UTILITIES
Contact Name: LOUANN GOLDIE
Contact Phone: (855) 872-3242
Contact Email: 811DESIGN@METRONET.COM

MEDIACOM COMMUNICATIONS CORPORATION
Contact Name: DARRIN WALKER
Contact Phone: (319) 759-3786
Contact Email: CMINARD@MEDIACOMCC.COM

LEGEND

- Property Boundary
- PROPOSED BUILDING REMOVALS
- Existing Manhole
- Existing Storm Sewer Intake
- Existing Electrical Transformer
- Existing Utility Pole, Light Pole, or Base
- Existing Fire Hydrant
- Existing Utility Vault

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY

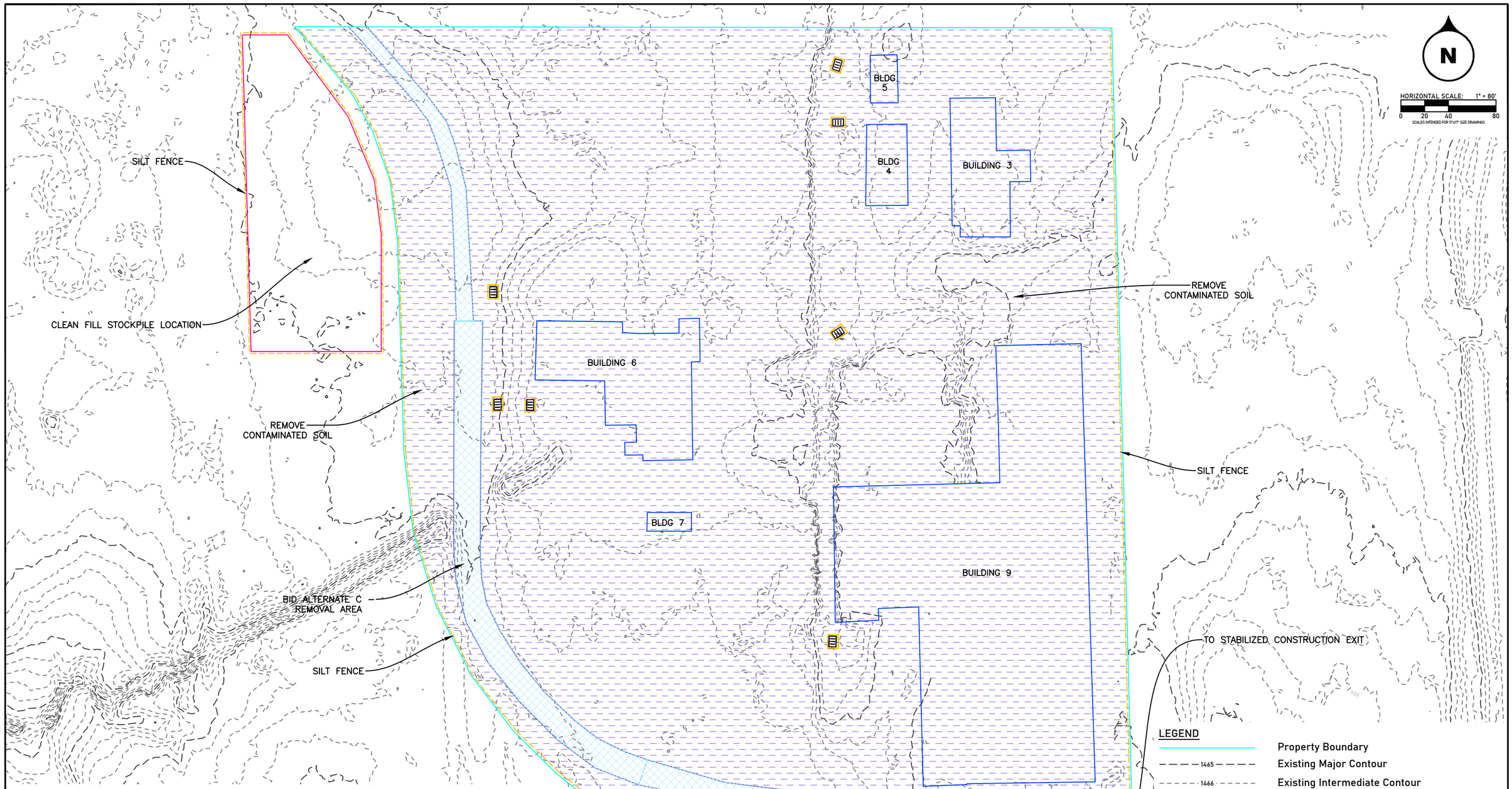
Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT
DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE
SITE UTILITIES MAP

TOTAL NUMBER OF SHEETS 10
DRAWN BY SD | CHECKED BY TW | DATE 3/4/2026
ACTIVITY ID
SHEET C.101
FILE NO.



CITY OF KEOKUK

STORMWATER POLLUTION PREVENTION PLAN NOTES

1. SWPPP WILL BE MANAGED AND UPDATED BY CITY'S CONSULTANT AND CONTRACTOR DURING WEEKLY SITE INSPECTIONS, CONSTRUCTION PHASING, AND WEATHER UPDATES.
2. THE CITY'S CONSULTANT AND CONTRACTOR(S) SHALL COMPLETE REQUIRED ON-SITE INSPECTIONS TOGETHER.
3. THE CONTRACTOR IS CONSIDERED AS A GENERAL PERMIT NO. 2 CO-PERMITTEE AS PART OF THE SIGNED CONTRACT FOR THIS PROJECT.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REV	DESCRIPTION	DATE	BY
1	ADDENDUM 1	3/19/26	SD/TW

Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: ELEVATIONS AND STORMWATER POLLUTION PREVENTION PLAN

TOTAL NUMBER OF SHEETS: 10
DRAWN BY: SD
CHECKED BY: TW
DATE: 3/19/2026
ACTIVITY ID:
SHEET: C.102
FILE NO.

GENERAL SITE PHOTOS

PROVIDED FOR INFORMATIONAL PURPOSES ONLY - NOT TO SCALE

BUILDING 3 TO BE DEMOLISHED

BUILDING 4 TO BE DEMOLISHED

BUILDING 5 TO BE DEMOLISHED

BUILDING 6 TO BE DEMOLISHED - VIEWED FROM THE SOUTHEAST

BUILDING 6 TO BE DEMOLISHED - VIEWED FROM THE WEST

INTERIOR OF BUILDING 6 - STORED MATERIALS TO BE REMOVED

BUILDING 7 TO BE DEMOLISHED

BUILDING 9 TO BE DEMOLISHED

INTERIOR OF BUILDING 9 - TANK TO BE REMOVED

INTERIOR OF BUILDING 9 - DEFUNCT EQUIPMENT TO BE REMOVED

STORAGE TANK TO BE REMOVED

STORMWATER DRAIN TO BE COVERED

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY

Eocene SM Environmental Group

eocene.com 515.473.6256

5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT: DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE: SITE PHOTOS

TOTAL NUMBER OF SHEETS: 10

DRAWN BY: SD | CHECKED BY: TW | DATE: 3/4/2026

ACTIVITY ID:

SHEET: C.103A

FILE NO.

GENERAL SITE PHOTOS

PROVIDED FOR INFORMATIONAL PURPOSES ONLY - NOT TO SCALE

CONCRETE DEBRIS TO BE REMOVED

VAULT TO BE REMOVED

DEFUNCT EQUIPMENT TO BE REMOVED

STORMWATER DRAIN TO BE COVERED
POLES AND CONCRETE TO BE REMOVED

CONCRETE TO BE REMOVED

STORMWATER DRAIN TO BE COVERED

DEFUNCT TRANSFORMER TO BE REMOVED

FENCE TO BE REMOVED

VAULT TO BE REMOVED

VAULT TO BE REMOVED

MONTORING WELL TO BE PROTECTED

BID ALTERNATE B - RAIL LINE REMOVAL

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY

Eocene SM Environmental Group
eocene.com 515.473.6256
5930 GRAND AVENUE WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT
DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE
SITE PHOTOS

TOTAL NUMBER OF SHEETS 10
DRAWN BY SD
CHECKED BY TW
DATE 3/4/2026
ACTIVITY ID
SHEET C.103B
FILE NO.

CITY OF KEOKUK

REV	DESCRIPTION	DATE	BY

Eocene SM Environmental Group
eocene.com
515.473.6256
5930 GRAND AVENUE
WEST DES MOINES, IA 50266

CITY OF KEOKUK

PROJECT
DEMOLITION AND SOIL REMEDIATION OF FORMER ELKEM CARBIDE (AUDITOR'S PARCEL D)
365 CARBIDE LANE, KEOKUK, IA 52632

SHEET TITLE
SITE ACCESS AND FENCE IMPROVEMENTS MAP

TOTAL NUMBER OF SHEETS 10
DRAWN BY SD
CHECKED BY TW
DATE 3/4/2026
ACTIVITY ID
SHEET C.104
FILE NO.

APPENDIX 3 – Phase II Targeted Brownfield Assessment - Hazardous Materials Survey

TETRA TECH

August 18, 2016

Mr. Todd Davis
Site Assessment Manager
U.S. Environmental Protection Agency, Region 7
11201 Renner Boulevard
Lenexa, Kansas 66219

Subject: **Phase II Targeted Brownfields Assessment – Hazardous Materials Survey**
Elkem Carbide
Keokuk, Lee County, Iowa
EPA Region 7 START 4, Contract No. EP-S7-13-06, Task Order No. 0002.019.017
Task Monitor: Todd Davis, Site Assessment Manager

Dear Mr. Davis:

Tetra Tech, Inc. is pleased to submit the enclosed Phase II Targeted Brownfields Assessment (TBA) – Hazardous Materials Survey report regarding the structures at the Elkem Carbide site in Keokuk, Iowa. If you have any questions or comments regarding this submittal, please call me at (816) 412-1775.

Sincerely,

David A Zimmerman
for Rob Monnig, PE
START Project Manager

David A Zimmerman
for Ted Faile, PG, CHMM
START Program Manager

Enclosures

cc: Debra Dorsey, START Project Officer (cover letter only)

415 Oak Street, Kansas City, MO 64106
Tel 816.412.1741 Fax 816.410.1748 www.tetratech.com

HAZARDOUS MATERIALS SURVEY
FOR PHASE II TARGETED BROWNFIELDS ASSESSEMENT

ELKEM CARBIDE
KEOKUK, IOWA

Superfund Technical Assessment and Response Team (START) 4 Contract
Contract No. EP-S7-13-06, Task Order 0002.019.017

Prepared For:

U.S. Environmental Protection Agency
Region 7
Superfund Division
11201 Renner Boulevard
Lenexa, Kansas 66219

August 18, 2016

Prepared By:

Tetra Tech, Inc.
415 Oak Street
Kansas City, Missouri 64106
(816) 412-1741

CONTENTS

APPENDICES

CONTENTS (Continued)

FIGURES (Appendix B)

TABLES

EXECUTIVE SUMMARY

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to perform asbestos and lead-based paint (LBP) inspections, and a household hazardous waste (HHW) inventory as part of a Phase II Targeted Brownfields Assessment (TBA) of the Elkem Carbide site in Keokuk, Iowa. The primary purpose of the survey was to assess potential impacts of asbestos, LBP, and HHW on the structures.

The following findings and recommendations are based on observations during the survey and analytical results from samples collected at the subject property buildings:

- Regulated asbestos-containing material (ACM) was identified within Building 1 on the subject property in approximately 110 square feet (ft^2) of 12" X 12" orange patterned floor tile in the kitchen. The floor tile was represented by sample 1-FT6-1. Laboratory results indicated that the floor tile contained 5-percent chrysotile asbestos. Because of asbestos in the floor tile, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 1 on the subject property in approximately 800 ft^2 of 9" X 9" brown floor tile in the south entrance and conference room. The floor tile was represented by samples 1-FT7-1, -2, and -3. Laboratory results indicated that the floor tile contained 6-percent chrysotile asbestos. Because of asbestos in the floor tile, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified on the exterior windows of Building 3 on the subject property in approximately 20 linear feet of window glaze. The window glaze was represented by samples 3-WG-1, -2, and -3. Laboratory results indicated that the window glaze contained 4-percent chrysotile asbestos. Because of asbestos in the window glaze, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 4 on the subject property in approximately 800 ft^2 of wall mastic behind paneling in the offices. The wall mastic was represented by samples 4-WM-1, -2, and -3. Laboratory results indicated that the wall mastic contained 12-percent chrysotile asbestos. Because of asbestos in the wall mastic, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 9 on the subject property in approximately 10,000 ft^2 of transite paneling. The transite paneling was represented by samples 9-TR-1, -2,

and -3. Laboratory results indicated that the transite paneling contained 20-percent chrysotile asbestos. Because of asbestos in the transite paneling, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- The Department of Housing and Urban Development (HUD) considers LBP as paint with lead levels above 1.0 mg/cm2. If the LBP surfaces are impacted during the renovations, or if the buildings are going to be demolished, Tetra Tech recommends the contractor conducting the renovation/demolition, comply with the Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, Title 29 of Code of Federal Regulations (CFR), Part 1926.62. In addition, Tetra Tech recommends a sample be collected from the debris pile for a Toxicity Characteristic Leaching Procedure (TCLP) analysis (Title 40 CFR 261.24) prior to transport to the landfill. A representative sample should be collected and analyzed for all eight metals specified in 40 CFR Part 261.24 (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). This would allow determination of the proper method of disposal of the materials. Of the 224 XRF readings from painted surfaces, 43 lead concentrations exceeded 1.0 mg/cm^2. The following is a summary of those positive readings:

    - LBP was identified in Building 1 on white concrete walls in the northeast open area and south entry; off-white plaster ceiling, green wall concrete, and white wall concrete at the bottom of the stairs; red metal door in the kitchen; and tan support pole in the covered parking area totaling approximately 3,980 square feet (ft^2).

    - LBP was identified in Building 2 on grey metal support beams; yellow concrete floor; and yellow metal door frame on the south garage door totaling approximately 3,060 ft^2.

    - LBP was identified in Building 3 on tan and white brick walls, tan and white concrete pillars, tan ceramic walls, and tan wood walls in the locker room; brown and beige ceramic wall tile, brown and white concrete pillars, blue concrete ceiling, and brown and tan brick walls in the entryway; brown wood exterior windows; blue brick walls on the west side; white brick walls and blue and white wood walls on the lab side; black wood door and brown wood screen door on the exterior west lab; light brown metal support beam, light brown wood overhand, and tan wood window frames on the exterior totaling approximately 9,794 square ft^2.

    - LBP was identified in Building 6 on grey metal doors and door frames on the exterior east side; yellow and brown/red metal stair railing and white concrete ceiling in the storage room; red/brown metal support beams in the 2nd floor storage room; and white metal door in the hall to the storage room totaling approximately 1,295 ft^2.

    - LBP was identified in Building 7 on yellow metal support beams totaling approximately 20 ft^2.

    - LBP was identified in Building 8 on yellow metal support beams in the main warehouse; yellow metal support beams and railings in the east/center stairwell; yellow metal door frame on the southeast side; red metal door and door frame in the north office area; and white metal support beams in the outer area totaling approximately 16,100 ft^2.

    - LBP was identified in Building 9 on yellow concrete post in the main plant, yellow metal door in the south garage, yellow metal stair railing and concrete guard post in the north

plant, blue metal guard post in the north plant, and yellow metal door in the north garage totaling approximately 80 ft^2.

- HHW and hazardous materials were inventoried during the survey. Tetra Tech recommends proper disposal of the materials based on their characteristics prior to renovation or demolition of the subject property buildings.

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to perform asbestos and lead-based paint (LBP) inspections, and a household hazardous waste (HHW) inventory as part of a Phase II Targeted Brownfields Assessment (TBA) of the Elkem Carbide site in Keokuk, Iowa. The primary purpose of the survey was to assess potential impacts of asbestos, LBP, and HHW on the structures.

The survey team included Mr. Jeffrey Mitchell, Licensed State of Iowa Asbestos Inspector and Licensed EPA LBP Inspector, and Ms. Kaitlyn Bahr, Ms. Joann Jeplawy, and Mr. Tommy Rebecchi, all licensed Asbestos Inspectors. Inspector certifications are in Appendix A. Survey strategy and sample methodology were developed based on planned reuse of the structures at this address. Because of limitations on destructive sampling methods, additional suspect materials may be present within walls, voids, or other concealed areas. Assumptions and deviations regarding the subject property survey are identified in Section 10.0. Prior to future remodeling or demolition of the structures, further survey work may be needed to comply with all local, state, and federal requirements regulating asbestos containing materials (ACM), LBP, and HHW.

Tetra Tech conducted the survey on June 27 and 28, 2016. The purpose of the survey was to evaluate the subject property for presence, quantity, locations, and characterization of ACM that may require abatement prior to any remodeling or demolition activities, in accordance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as adopted by the U.S. Environmental Protection Agency (EPA). The intent of the asbestos NESHAP regulations is to protect the public (and workers) by minimizing release of asbestos fibers during activities involving processing, handling, and disposal of ACM. Inhalation of asbestos fibers can cause cancer and other lung diseases (Agency for Toxic Substances and Disease Registry [ATSDR] 2008). The survey was completed in accordance with industry standard practice for hazardous materials surveys. Asbestos samples were collected in accordance with NESHAP regulations as adopted by the EPA.

Tetra Tech also conducted a screening for presence, quantity, and locations of LBP exceeding lead hazard levels, which would require Occupational Safety and Health Administration (OSHA) worker safety precautions during remodeling or demolition activities. The LBP survey was conducted according to protocols similar to the single-family housing inspection procedures in Department of Housing and Urban Development (HUD) guidelines (HUD 1997) by use of an XT-260 x-ray fluorescence (XRF)

spectrometer manufactured by Innov-X Systems, Inc. (Innov-X). The Innov-X is a state-of-the-art XRF spectrum analyzing system for quantitative measurement of lead in paint on various substrates.

Finally, as part of the survey, Tetra Tech completed an inventory of HHW and hazardous materials in the structure. The inventory included but was not limited to the following types of materials: thermostats and fluorescent light bulbs possibly containing mercury, fluorescent light ballasts potentially containing polychlorinated biphenyls (PCB), emergency lighting and exit signs that house batteries containing heavy metals, appliances containing Freon, product containers holding hazardous materials (such as cleaning supplies, paint, etc.), and any other HHW items.

A site-specific work plan and quality assurance project plan (QAPP) in support of survey activities were submitted to EPA on March 30, 2016, and were approved on June 8, 2016, prior to the survey at the subject property (Tetra Tech 2016). Field activities accorded with the QAPP, except where noted. Tetra Tech prepared this report in accordance with generally accepted industrial hygiene practice and procedures. This report does not cover or comment on structural areas not assessed either visibly or by sample collection. The data evaluation and assessment stated herein constitute a professional opinion; no other warranty is expressed or implied. Assumptions and deviations regarding the subject property building surveyed are identified in Section 10.0.

Tetra Tech provided these services consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions. This statement is in lieu of other statements either expressed or implied. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user. This survey report does not warrant against future operations or conditions that may not be consistent with its recommendations. Moreover, because of some limitations on destructive sampling during the survey, completion of the survey does not guarantee identification of all hazardous materials, ACMs, or LBP—hazardous materials may be present in voids of walls or ceilings.

Section 2.0 of this report discusses the site structures. Section 3.0 specifies field survey and analytical protocols for the asbestos survey. Section 4.0 presents the field survey and analytical protocols for the LBP screening. Section 5.0 describes procedures regarding the HHW and hazardous materials inventory. Section 6.0 presents asbestos findings. Section 7.0 describes LBP findings. Section 8.0 provides HHW and hazardous materials inventory findings. Section 9.0 offers recommendations based on survey

findings. Section 10.0 specifies assumptions and deviations, and Section 11.0 provides a list of references cited within this document.

2.0 SUBJECT PROPERTY BUILDINGS

The subject property hosts nine commercial buildings, all locations of which are depicted on Figure 3 in Appendix B:

- Building #1, the northernmost building, is a former office space. The building is generally finished with drywall walls, lay-in acoustic tile ceilings, and vinyl floor tile. Building #1 contains an assortment of office supplies left behind, including desks, filing cabinets, a copier, and a fax machine. The building is equipped with a heating, venting, and air conditioning (HVAC) system.

- Building #2, south of Building #1, is a warehouse with corrugated sheet metal siding. It was formerly used for carbide container storage (Terracon 2009).

- Building #3 was formerly a laboratory and first aid center. The paint on the interior is heavily flaking. Building #3 contains old laboratory supplies such as ovens, sampling equipment, and x-ray equipment. Standing water in the basement rendered the area inaccessible.

- Building #4 is a former office space. The interior of the building is finished with drywall and vinyl floor tile.

- Building #5 is the North Substation. The interior is finished with painted brick walls and concrete floors.

- Building #6 served as the receiving and maintenance building. The interior is generally finished with painted brick walls and concrete floors. Standing water in the basement rendered the area inaccessible.

- Building #7 is a shed with corrugated sheet metal siding currently used to store a few drums.

- Building #8, the southernmost building, formerly served as the carbon block manufacturing building. The building is made of corrugated sheet metal and brick.

- Building #9 is a manufacturing building with corrugated sheet metal siding formerly used for production of electrode paste.

3.0 ACM FIELD SURVEY AND ANALYTICAL PROTOCOLS

Tetra Tech made every effort to inspect all areas of the structures. Minor demolition of materials (destructive sampling) was required during the survey effort. The inspector took care to ensure that the structure remained unoccupied during sample collection. Asbestos samples were collected in accordance with NESHAP as adopted by EPA and Asbestos Hazard and Emergency Response Act of 1986 (AHERA) protocols. AHERA defines "asbestos containing material" (ACM) as any material or product that contains more than 1 percent (%) asbestos. Suspected ACMs were grouped as homogeneous areas if the material was similar in appearance and texture; however, if the inspector decided that a material (for example, wall texturing) was not similar in appearance and texture to other materials in the subject property building, the inspector distinguished the material as unique and collected samples of each unique material accordingly. Because of limitations on destructive sampling methods, additional suspect materials not detected may be present in walls, voids, or other concealed areas. Assumptions and deviations regarding the building surveys are identified in Section 10.0.

Bulk samples of suspected ACM were collected to ensure that each distinct layer of material was represented in the sample. A wetting agent was applied to friable surfaces prior to sample collection to reduce potential for fiber release. All samples collected were placed in plastic bags, labeled, and sealed immediately upon collection. To prevent cross-contamination between samples, the sampling instruments were wiped clean by use of a wet, lint-free cloth after collection of each sample. A unique sample identification number was assigned to each sample.

The samples remained in the inspector's custody until sent to the laboratory. Upon completion of sampling activities, the bulk samples were sent, along with Tetra Tech's chain-of-custody documentation, to Quantem Laboratories (Quantem) in Oklahoma City, Oklahoma. Suspect ACM samples were analyzed per EPA Method 600/R-93/116 by Quantem via Polarized Light Microscopy (PLM) analysis and, in some cases, 400 Point Count. Quantem is a National Voluntary Laboratory Accreditation Program (NVLAP)-certified laboratory, certification number 101959. Section 6.0 of this report summarizes ACM analytical results. Sample locations are shown on Figures 2a -2g in Appendix B. Appendix C includes ACM analytical results and chain-of-custody forms for the bulk samples.

4.0 LBP SCREENING AND ANALYTICAL PROTOCOLS

Tetra Tech made every effort to inspect all areas of the buildings. HUD *Guidelines for the Evaluation and Control of LBP in Housing* (1997) suggests that paint applied before 1978 could contain lead.

An XRF screening of suspected LBP was performed according to protocols similar to the single-family housing inspection procedures in the HUD *Guidelines*. Tetra Tech utilized an Innov-X XRF to perform the LBP screening. The Innov-X is a state-of-the-art XRF spectrum analyzing system for quantitative measurement of lead in paint on various substrates. Tetra Tech performed XRF screening of suspect painted surfaces that possibly would be impacted during renovation or demolition activities.

Tetra Tech utilized the XRF "Lead Paint Mode" for testing, standardized per the equipment instruction manual, and programmed the unit with an action level of 1.0 milligram per square centimeter (mg/cm^2). The Innov-X automatically adjusts the measurement time to be the least time needed to make a definitive measurement based on the action level. Paint containing greater than or equal to 1.0 mg/cm^2 lead by XRF testing or 1.0 mg/cm^2 lead by laboratory analysis is considered LBP.

Tetra Tech performed XRF calibration checks on the Innov-X according to the manufacturer's recommended protocol and the HUD *Guidelines*. These quality control readings were used to monitor performance of the Innov-X. Calibration-check readings were taken after every hour of operation with use of a Standard Reference Material (SRM) paint film, developed by the National Institute of Standards and Technology (NIST). Section 7.0 of this report summarizes results from XRF screening of samples of painted surfaces collected at the subject property.

5.0 HOUSEHOLD HAZARDOUS WASTE AND HAZARDOUS MATERIALS INVENTORY

Tetra Tech completed an inventory of HHW and other potentially hazardous materials in the structure. This inventory included but was not limited to the following types of materials: thermostats and fluorescent light bulbs possibly containing mercury, fluorescent light ballasts potentially containing PCBs, emergency lighting and exit signs that house batteries containing heavy metals, appliances containing Freon, product containers holding hazardous materials (such as cleaning supplies, paint, etc.), and any other HHW items that may have been present.

Tetra Tech used an inventory field sheet and went through every room in the structures identifying, categorizing, and quantifying HHW and hazardous materials. Tetra Tech made every effort to provide a complete inventory of these items; however, Tetra Tech cannot guarantee an accounting of every item. A summary of HHW and hazardous materials inventoried during the survey is in Section 8.0 of this report.

6.0 ACM FINDINGS

The laboratory report in Appendix C provides the PLM and/or 400 Point Count results from the ACM samples collected from the structures, which are summarized in Table 1 below. Bolded results in Table 1 indicate where asbestos was detected at a concentration greater than 1 percent.

TABLE 1

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
Building 1					
1	1-CBM-1	Brown Cove Base with Mastic	Throughout top floor and kitchen	ND	NA
2	1-CBM-2	Brown Cove Base with Mastic	Throughout top floor and kitchen	ND	NA
3	1-CBM-3	Brown Cove Base with Mastic	Throughout top floor and kitchen	ND	NA
4	1-FT-1	12” X 12” Brown Vinyl Floor Tile with Adhesive	West half of top floor	ND	NA
5	1-FT-2	12” X 12” Brown Vinyl Floor Tile with Adhesive	West half of top floor	ND	NA
6	1-FT-3	12” X 12” Brown Vinyl Floor Tile with Adhesive	West half of top floor	ND	NA
7	1-CT-1	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout top floor and basement	ND	NA
8	1-CT-2	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout top floor and basement	ND	NA
9	1-CT-3	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout top floor and basement	ND	NA
10	1-ST-1	Stair Tread	Top floor	ND	NA
11	1-ST-2	Stair Tread	Top floor	ND	NA
12	1-ST-3	Stair Tread	Top floor	ND	NA
13	1-CT2-1	2’ X 2’ Pinhole/Fissure Ceiling Tile	Open office area, top floor, and conference room	ND	NA
14	1-CT2-2	2’ X 2’ Pinhole/Fissure Ceiling Tile	Open office area, top floor, and conference room	ND	NA
15	1-CT2-3	2’ X 2’ Pinhole/Fissure Ceiling Tile	Open office area, top floor, and conference room	ND	NA
16	1-FT2-1	12” X 12” Grey Vinyl Floor Tile with Adhesive	Conference room and south entrance	ND	NA
17	1-FT2-2	12” X 12” Grey Vinyl Floor Tile with Adhesive	Conference room and south entrance	ND	NA
18	1-FT2-3	12” X 12” Grey Vinyl Floor Tile with Adhesive	Conference room and south entrance	ND	NA
19	1-CBM2-1	Grey Cove Base with Mastic	Conference room and south entrance	ND	NA
20	1-CBM2-2	Grey Cove Base with Mastic	Conference room and south entrance	ND	NA
21	1-CBM2-3	Grey Cove Base with Mastic	Conference room and south entrance	ND	NA
22	1-DWJC-1	Drywall and Joint Compound	Throughout top floor and basement	ND	NA
23	1-DWJC-2	Drywall and Joint Compound	Throughout top floor and basement	ND	NA
24	1-DWJC-3	Drywall and Joint Compound	Throughout top floor and basement	ND	NA

TABLE 1 (Continued)

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
25	1-PLSC-1	Plaster and Skim Coat	Top floor ceiling and basement ceiling (above drop ceiling)	ND	NA
26	1-PLSC-2	Plaster and Skim Coat	Top floor ceiling and basement ceiling (above drop ceiling)	ND	NA
27	1-PLSC-3	Plaster and Skim Coat	Top floor ceiling and basement ceiling (above drop ceiling)	ND	NA
28	1-GP-1	Glue Puck	Top floor ceiling and basement ceiling	ND	NA
29	1-GP-2	Glue Puck	Top floor ceiling and basement ceiling	ND	NA
30	1-GP-3	Glue Puck	Top floor ceiling and basement ceiling	ND	NA
31	1-FT3-1	9” X 9” Brown Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
32	1-FT3-2	9” X 9” Brown Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
33	1-FT3-3	9” X 9” Brown Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
34	1-FT4-1	9” X 9” Grey Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
35	1-FT4-2	9” X 9” Grey Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
36	1-FT4-3	9” X 9” Grey Vinyl Floor Tile with Adhesive	East office, closet, and bathroom	ND	NA
37	1-CA-1	Carpet Adhesive	East office	ND	NA
38	1-CA-2	Carpet Adhesive	East office		
39	1-CA-3	Carpet Adhesive	East office		
40	1-ST2-1	Stair Tread	South entrance	ND	NA
41	1-ST2-2	Stair Tread	South entrance		
42	1-ST2-3	Stair Tread	South entrance		
43	1-FT5-1	12” X 12” Orange Vinyl Floor Tile with Adhesive	Kitchen	ND	NA
44	**1-FT6-1**	**12” X 12” Orange Patterned Vinyl Floor Tile with Adhesive**	**Kitchen**	**Floor Tile: 5% Chry;** Adhesive: ND	**110 SF**
45	1-CT3-1	2’ X 2’ Pinhole/Fissure Ceiling Tile	Kitchen	ND	NA
46	1-CT3-2	2’ X 2’ Pinhole/Fissure Ceiling Tile	Kitchen	ND	NA
47	1-CT3-3	2’ X 2’ Pinhole/Fissure Ceiling Tile	Kitchen	ND	NA
48	1-CBM3-1	White Cove Base with Mastic	Basement	ND	NA
49	1-CBM3-2	White Cove Base with Mastic	Basement	ND	NA

TABLE 1 (Continued)

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
50	1-CBM3-3	White Cove Base with Mastic	Basement	ND	NA
51	1-CT4-1	2' X 4' Pinhole Ceiling Tile	Basement	ND	NA
52	1-CT4-2	2' X 4' Pinhole Ceiling Tile	Basement	ND	NA
53	1-CT4-3	2' X 4' Pinhole Ceiling Tile	Basement	ND	NA
54	1-PW-1	Partial Wall Panel	Throughout	ND	NA
55	1-PW-2	Partial Wall Panel	Throughout	ND	NA
56	1-PW-3	Partial Wall Panel	Throughout	ND	NA
57	1-WC-1	Window Caulk	Exterior wood windows	ND	NA
58	1-WC-2	Window Caulk	Exterior wood windows	ND	NA
59	1-WC-3	Window Caulk	Exterior wood windows	ND	NA
60	**1-FT7-1**	**9" X 9" Brown Vinyl Floor Tile with Adhesive**	**South entrance and conference room**	**Floor Tile: 6% Chry;** Mastic: 0.50% Chry***	**800 SF**
61	**1-FT7-2**	**9" X 9" Brown Vinyl Floor Tile with Adhesive**	**South entrance and conference room**	**Floor Tile: 6% Chry;** Mastic: 0.25% Chry***	
62	**1-FT7-3**	**9" X 9" Brown Vinyl Floor Tile with Adhesive**	**South entrance and conference room**	**Floor Tile: 6% Chry;** Mastic: 0.50% Chry***	
63	1-FP-1	Floor Paper	East office, closet, and bathroom	ND	NA
64	1-FP-2	Floor Paper	East office, closet, and bathroom	ND	NA
65	1-FP-3	Floor Paper	East office, closet, and bathroom	ND	NA
66	1-CBM4-1	Black Cove Base with Mastic	East office, closet, and bathroom	ND	NA
67	1-FT8-1	12" X 12" Brown Vinyl Floor Tile with Adhesive	East half of top floor	ND	NA
68	1-FT8-2	12" X 12" Brown Vinyl Floor Tile with Adhesive	East half of top floor	ND	NA
69	1-FT8-3	12" X 12" Brown Vinyl Floor Tile with Adhesive	East half of top floor	ND	NA
Building 2					
1	2-WG-1	Window Glaze	Exterior windows	ND	NA
2	2-WG-2	Window Glaze	Exterior windows	ND	NA
3	2-WG-3	Window Glaze	Exterior windows	ND	NA

TABLE 1 (Continued)

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
Building 3					
1	3-CT-1	2’ X 4’ Pinhole/Fissure Ceiling Tile	Lab tech offices	ND	NA
2	3-CT-2	2’ X 4’ Pinhole/Fissure Ceiling Tile	Lab tech offices	ND	NA
3	3-CT-3	2’ X 4’ Pinhole/Fissure Ceiling Tile	Lab tech offices	ND	NA
4	3-TSI-1	Thermal Systems Insulation	Locker room duct	ND	NA
5	3-TSI-2	Thermal Systems Insulation	Locker room duct	ND	NA
6	3-TSI-3	Thermal Systems Insulation	Locker room duct	ND	NA
7	**3-WG-1**	**Grey Window Glaze**	**Exterior**	**4% Chry**	**20 LF**
8	**3-WG-2**	**Grey Window Glaze**	**Exterior**		
9	**3-WG-3**	**Grey Window Glaze**	**Exterior**		
10	3-TSI2-1	White Casing around Foam	Lab room duct work	ND	NA
11	3-TSI2-2	White Casing around Foam	Lab room duct work	ND	NA
12	3-TSI2-3	White Casing around Foam	Lab room duct work	ND	NA
Building 4					
1	4-FT-1	12” X 12” Brown Vinyl Floor Tile with Adhesive	Throughout offices	ND	NA
2	4-FT-2	12” X 12” Brown Vinyl Floor Tile with Adhesive	Throughout offices	ND	NA
3	4-FT-3	12” X 12” Brown Vinyl Floor Tile with Adhesive	Throughout offices	ND	NA
4	4-CT-1	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout	ND	NA
5	4-CT-2	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout	ND	NA
6	4-CT-3	2’ X 4’ Pinhole/Fissure Ceiling Tile	Throughout	ND	NA
7	4-DWJC-1	Drywall and Joint Compound	Throughout	<0.25% Chry***	NA
8	4-DWJC-2	Drywall and Joint Compound	Throughout	<0.25% Chry***	
9	4-DWJC-3	Drywall and Joint Compound	Throughout	0.25% Chry***	
10	4-CBM-1	4” Brown Cove Base with Mastic	Throughout	ND	NA
11	4-CBM-2	4” Brown Cove Base with Mastic	Throughout	ND	NA
12	4-CBM-3	4” Brown Cove Base with Mastic	Throughout	ND	NA
13	4-FT2-1	12” X 12” Brick Red Vinyl Floor Tile	Entrance hallway and custodian closet	ND	NA
14	4-FT2-2	12” X 12” Brick Red Vinyl Floor Tile	Entrance hallway and custodian closet	ND	NA
15	4-FT2-3	12” X 12” Brick Red Vinyl Floor Tile	Entrance hallway and custodian closet	ND	NA
16	**4-WM-1**	**Wall Mastic**	**Behind wood paneling in offices**	**12% Chry**	**800 SF**
17	**4-WM-2**	**Wall Mastic**	**Behind wood paneling in offices**		
18	**4-WM-3**	**Wall Mastic**	**Behind wood paneling in offices**		

TABLE 1 (Continued)

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
Building 6					
1	6-WG-1	Window Glaze	Exterior	ND	NA
2	6-WG-2	Window Glaze	Exterior	ND	NA
3	6-WG-3	Window Glaze	Exterior	ND	NA
4	6-CT-1	2’ X 4’ Pinhole/Fissure Ceiling Tile	Office	ND	NA
5	6-CT-2	2’ X 4’ Pinhole/Fissure Ceiling Tile	Office	ND	NA
6	6-CT-3	2’ X 4’ Pinhole/Fissure Ceiling Tile	Office	ND	NA
Building 8					
1	8-TSI-1	Thermal Systems Insulation	Boiler	ND	NA
2	8-TSI-2	Thermal Systems Insulation	Boiler	ND	NA
3	8-TSI-3	Thermal Systems Insulation	Boiler	ND	NA
4	8-CT-1	2’ X 2’ White Ceiling Tile	Bathroom, hallway, and 2nd floor office	ND	NA
5	8-CT-2	2’ X 2’ White Ceiling Tile	Bathroom, hallway, and 2nd floor office	ND	NA
6	8-CT-3	2’ X 2’ White Ceiling Tile	Bathroom, hallway, and 2nd floor office	ND	NA
7	8-CBM-1	4” Brown Cove Base with Mastic	Bathroom, hallway, and 2nd floor office	ND	NA
8	8-CBM-2	4” Brown Cove Base with Mastic	Bathroom, hallway, and 2nd floor office	ND	NA
9	8-CBM-3	4” Brown Cove Base with Mastic	Bathroom, hallway, and 2nd floor office	ND	NA
10	8-WG-1	Window Glaze	Exterior 2nd floor windows	ND	NA
11	8-WG-2	Window Glaze	Exterior 2nd floor windows	ND	NA
12	8-WG-3	Window Glaze	Exterior 2nd floor windows	ND	NA
13	8-CT2-1	2’ X 4’ White Pinhole/Fissure Ceiling Tile	2nd floor office	ND	NA
14	8-CT2-2	2’ X 4’ White Pinhole/Fissure Ceiling Tile	2nd floor office	ND	NA
15	8-CT2-3	2’ X 4’ White Pinhole/Fissure Ceiling Tile	2nd floor office	ND	NA
16	8-DWJC-1	Drywall and Joint Compound	1st and 2nd floor offices (1 wall in each)	ND	NA
17	8-DWJC-2	Drywall and Joint Compound	1st and 2nd floor offices (1 wall in each)	ND	NA
18	8-DWJC-3	Drywall and Joint Compound	1st and 2nd floor offices (1 wall in each)	ND	NA
19	8-FT-1	12” X 12” Silver Vinyl Floor Tile	1st and 2nd floor offices	ND	NA
20	8-FT-2	12” X 12” Silver Vinyl Floor Tile	1st and 2nd floor offices	ND	NA
21	8-FT-3	12” X 12” Silver Vinyl Floor Tile	1st and 2nd floor offices	ND	NA
22	8-CTX-1	Ceiling Texture	1st and 2nd floor offices	ND	NA
23	8-CTX-2	Ceiling Texture	1st and 2nd floor offices	ND	NA
24	8-CTX-3	Ceiling Texture	1st and 2nd floor offices	ND	NA

TABLE 1 (Continued)

SUMMARY OF SUSPECT ACM LABORATORY ANALYSIS
ELKEM CARBIDE – KEOKUK, IOWA

Figure Key	Sample ID	Material Description	Material Locations	Analytical Result (% ACM*)	Quantity**
25	8-CBM2-1	4" Black Cove Base with Mastic	1st and 2nd floor offices	ND	NA
26	8-CBM2-2	4" Black Cove Base with Mastic	1st and 2nd floor offices	ND	NA
27	8-CBM2-3	4" Black Cove Base with Mastic	1st and 2nd floor offices	ND	NA
28	8-VER-1	Vermiculite	In cinderblock throughout	0.50% Actinolite/Tremolite ***	NA
29	8-VER-2	Vermiculite	In cinderblock throughout	ND	NA
30	8-VER-3	Vermiculite	In cinderblock throughout	0.75% Actinolite/Tremolite ***	NA
Building 9					
1	9-CT-1	2' X 4' Pinhole/Fissure Ceiling Tile	Office	ND	NA
2	9-CT-2	2' X 4' Pinhole/Fissure Ceiling Tile	Office	ND	NA
3	9-CT-3	2' X 4' Pinhole/Fissure Ceiling Tile	Office	ND	NA
4	9-DW-1	Drywall	Office	ND	NA
5	9-DW-2	Drywall	Office	ND	NA
6	9-DW-3	Drywall	Office	ND	NA
7	**9-TR-1**	**Transite Panel**	**North side of building**	**20% Chry**	**10,000 SF**
8	**9-TR-2**	**Transite Panel**	**North side of building**		
9	**9-TR-3**	**Transite Panel**	**North side of building**		

Notes:

Bolded results indicate that ACM was detected.

* AHERA defines ACM as any material or product that contains more than 1 percent asbestos.

** This is only an estimated quantity of this material and should not be used for bidding purposes. Tetra Tech recommends any contractor bidding on removal of this material visually verify the quantity.

*** AHERA defines ACM as greater than 1% asbestos. These materials contain <1% asbestos; therefore, the material is not regulated for disposal purposes. However, the material does contain asbestos, so if the material is disturbed, OSHA regulations must be followed and personal protective equipment must be used.

%	Percent	LF	Linear feet
ACM	Asbestos containing material	NA	Not applicable
AHERA	Asbestos Hazard and Emergency Response Act of 1986	ND	Not detected
ID	Identification	SF	Square feet
Chry	Chrysotile		
EPA	U.S. Environmental Protection Agency		
OSHA	Occupational Safety and Health Administration		

7.0 LBP FINDINGS

Results of XRF screening at the subject property are summarized in Table 2 below.

TABLE 2

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
Building 1						
White	West Entry	Wall Border	Wood	0.00	NA	NA
White	West Entry	Wall	Concrete	0.78	NA	NA
Varnish	Traffic Office	Door	Wood	0.03	NA	NA
White	Traffic Office	Door Frame	Wood	0.00	NA	NA
Varnish	Traffic Office	Wall	Wood	0.05	NA	NA
White	Southeast Reception	Wall	Drywall	0.00	NA	NA
Varnish	Northwest Office	Wall	Wood	0.04	NA	NA
White	North Central Office	Wall	Drywall	0.00	NA	NA
White	North Central Office	Wall	Wood	0.00	NA	NA
White	North Central Office	Window Frame	Wood	0.00	NA	NA
White	North Windows	Window Frame	Wood	0.00	NA	NA
White	**Northeast Open Area**	**Walls (Original)**	**Concrete**	**>5.00**	**No**	**1,200 SF (exposed)**
Varnish	Northeast Office	Wall	Wood	0.00	NA	NA
Varnish	Northeast Office	Door	Wood	0.00	NA	NA
Varnish	Northeast Office	Door Frame	Wood	0.00	NA	NA
White	Northeast Office	Door Frame	Wood	0.00	NA	NA
Varnish	Southeast Office	Door Frame	Wood	0.00	NA	NA
Varnish	Southeast Office	Wall	Wood	0.00	NA	NA
White	Bathrooms	Door Frame	Wood	0.00	NA	NA
White	Bathrooms	Walls	Drywall	0.00	NA	NA
White	South Offices	Window Frame	Wood	0.00	NA	NA
White	South Entry	Wall	Cinderblock	0.02	NA	NA
White	**South Entry**	**Wall**	**Concrete**	**>5.00**	**No**	**500 SF**
White	Conference Room	Wall	Drywall	0.00	NA	NA
Off-White	**Bottom of Stairs**	**Ceiling**	**Plaster**	**>5.00**	**Yes**	**1,800 SF**
White	Bottom of Stairs	Wall	Drywall	0.00	NA	NA
Green	**Bottom of Stairs**	**Wall**	**Concrete**	**>5.00**	**No**	**400 SF (exposed)**
White	**Bottom of Stairs**	**Wall**	**Concrete**	**>5.00**	**No**	**20 SF (exposed)**

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
Tan	North East Office	Door Frame	Wood	0.00	NA	NA
Grey	North East Office	Floor	Concrete	0.06	NA	NA
White	North East Office	Window Frame	Wood	0.00	NA	NA
Tan	Engineering	Door Frame	Wood	0.00	NA	NA
Tan	Engineering	Support Pole	Metal	0.00	NA	NA
White	Engineering	Wall	Cinderblock	0.00	NA	NA
White	Engineering	Trim	Wood	0.00	NA	NA
Red	**Kitchen**	**Door**	**Metal**	**>5.00**	**No**	**10 SF**
Tan	Kitchen	Door Frame	Wood	0.00	NA	NA
Tan	Exterior	Wall	Cinderblock	0.00	NA	NA
Brown	Exterior	Window Trim	Wood	0.00	NA	NA
Brown	Exterior	Support Beam	Metal	0.00	NA	NA
Brown	Exterior	Hand Railing	Metal	0.00	NA	NA
Brown	Covered Parking	Wall	Wood	0.00	NA	NA
Tan	**Covered Parking**	**Support Pole**	**Metal**	**2.69**	**No**	**50 SF**
Tan	Covered Parking	Wall	Wood	0.02	NA	NA
Building 2						
Grey	**Warehouse**	**Support Beam**	**Metal**	**>5.00**	**Yes**	**3,000 SF**
Yellow	Warehouse	Post	Concrete	0.00	NA	NA
Yellow	**Warehouse**	**Floor**	**Concrete**	**2.65**	**Yes**	**50 SF**
Light Brown	Warehouse	Post	Concrete	0.00	NA	NA
Yellow	**South Garage Door**	**Door Frame**	**Metal**	**>5.00**	**Yes**	**10 SF**
Building 3						
Green	North Office	Door	Metal	0.00	NA	NA
Green	North Office	Door Frame	Metal	0.00	NA	NA
Green	North Office	Wall	Concrete	0.00	NA	NA
White	North Office	Wall	Concrete	0.00	NA	NA
Green	North Office	Radiator	Metal	0.07	NA	NA
Green	North Office	Window Frame	Wood	0.74	NA	NA
Green	North Office	Door Frame	Wood	0.00	NA	NA
Green	North Office	Wall Panel	Wood	0.00	NA	NA
White	North Office	Pipe	Wood	0.04	NA	NA
Tan	**Locker Room**	**Wall**	**Brick**	**>5.00**	**No**	**800 SF**

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
White	**Locker Room**	**Wall**	**Brick**	**>5.00**	**No**	**1,000 SF**
White	Locker Room	Ceiling	Concrete	0.00	NA	NA
Tan	**Locker Room**	**Pillar**	**Concrete**	**>5.00**	**No**	**100 SF**
White	**Locker Room**	**Pillar**	**Concrete**	**>5.00**	**No**	**100 SF**
Tan	**Locker Room**	**Wall**	**Ceramic**	**>1.00**	**No**	**800 SF**
Tan	**Locker Room**	**Wall**	**Wood**	**>5.00**	**No**	**200 SF**
Brown	Locker Closet	Door	Wood	0.00	NA	NA
White	Locker Closet	Door Frame	Metal	0.00	NA	NA
Yellow	Locker Closet	Wall	Cinderblock	0.08	NA	NA
Grey	Locker Closet	Wall	Cinderblock	0.05	NA	NA
Yellow	Locker Closet	Pipe	Metal	0.00	NA	NA
Yellow	Locker Closet	Wall	Brick	0.00	NA	NA
Grey	Locker Closet	Pipe	Metal	0.00	NA	NA
Tan	Hallway	Wall	Cinderblock	0.00	NA	NA
Off-White	Hallway	Wall	Cinderblock	0.00	NA	NA
Brown	**Entryway**	**Wall**	**Ceramic**	**>1.00**	**No**	**100 SF**
Beige	**Entryway**	**Wall**	**Ceramic**	**>1.00**	**No**	**100 SF**
Brown	Entryway	Door	Wood	0.00	NA	NA
Brown	Entryway	Door Frame	Wood	0.00	NA	NA
Brown	Entryway	Wall	Drywall	0.00	NA	NA
Off-White	Entryway	Wall	Drywall	0.00	NA	NA
Brown	Entryway	Wall	Cinderblock	0.00	NA	NA
Brown	Entryway	Wall	Cinderblock	0.00	NA	NA
Brown	**Entryway**	**Pillar**	**Concrete**	**>5.00**	**No**	**20 SF**
White	**Entryway**	**Pillar**	**Concrete**	**>5.00**	**No**	**20 SF**
Blue	**Entryway**	**Ceiling**	**Concrete**	**>5.00**	**No**	**500 SF**
Brown	Entryway	Window Frame	Wood	0.00	NA	NA
Brown	**Entryway**	**Wall**	**Brick**	**>5.00**	**No**	**1,200 SF**
Tan	**Entryway**	**Wall**	**Brick**	**>5.00**	**No**	**100 SF**
Brown	Hallway	Door	Metal	0.00	NA	NA
Brown	Hallway	Door Frame	Metal	0.00	NA	NA
Yellow	Locker Room	Wall Tile	Ceramic	0.04	NA	NA
Yellow	Locker Room	Wall	Brick	0.00	NA	NA

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
Tan	Exterior	Door	Metal	0.00	NA	NA
Brown	Exterior	Door Frame	Wood	0.00	NA	NA
Brown	**Exterior**	**Window**	**Wood**	**>5.00**	**No**	**12 SF**
Blue	West Side	Door	Metal	0.00	NA	NA
Blue	West Side	Door Frame	Metal	0.01	NA	NA
Blue	**West Side**	**Wall**	**Brick**	**>5.00**	**No**	**1,000 SF**
White	**Lab Side**	**Wall**	**Brick**	**>5.00**	**No**	**1,000 SF**
White	**Lab Side**	**Wall**	**Wood**	**>5.00**	**No**	**800 SF**
Blue	**Lab Side**	**Wall**	**Wood**	**>5.00**	**No**	**800 SF**
White	Lab Side	Wall	Cinderblock	0.00	NA	NA
Blue	Lab Side	Door	Wood	0.00	NA	NA
Blue	Lab Side	Door Frame	Wood	0.00	NA	NA
Blue	Lab Side	Wall	Cinderblock	0.00	NA	NA
Blue	Lab Side	Window Frame	Wood	0.00	NA	NA
Black	**West Lab Exterior**	**Door**	**Wood**	**>5.00**	**Yes**	**20 SF**
Brown	**West Lab Exterior**	**Screen Door**	**Wood**	**>5.00**	**Yes**	**10 SF**
White	West Lab Exterior	Wall	Cinderblock	0.00	NA	NA
Brown	West Lab Exterior	Wall	Brick	0.00	NA	NA
Brown	West Lab Exterior	Window	Wood	0.00	NA	NA
Brown	West Lab Exterior	Door Frame	Wood	0.00	NA	NA
Tan	Exterior	Wall	Brick	0.00	NA	NA
Tan	Exterior	Wall	Cinderblock	0.00	NA	NA
Light Brown	**Exterior**	**Support Beam**	**Metal**	**>5.00**	**No**	**100 SF**
Light Brown	**Exterior**	**Wood Overhang**	**Wood**	**1.62**	**No**	**1,000 SF**
Tan	**Exterior**	**Window Frame**	**Wood**	**>5.00**	**No**	**12 SF**
Building 4						
White	Conference Room	Wall	Drywall	0.00	NA	NA
Brown	Conference Room	Door Frame	Wood	0.00	NA	NA
Grey	Conference Room	Door Frame	Metal	0.00	NA	NA
Grey	Conference Room	Door	Metal	0.00	NA	NA
Off-White	Offices	Wall	Drywall	0.00	NA	NA
Varnish	Offices	Door	Wood	0.00	NA	NA
Varnish	Offices	Window Frame	Wood	0.00	NA	NA

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
Beige	Offices	Wall	Drywall	0.00	NA	NA
Brown	Offices	Wall	Drywall	0.00	NA	NA
Off-White	Offices	Interior Wall	Cinderblock	0.00	NA	NA
Yellow	Bathroom	Wall	Concrete	0.06	NA	NA
Green	Bathroom	Ceiling	Concrete	0.02	NA	NA
Brown	Bathroom	Door	Metal	0.04	NA	NA
Brown	Bathroom	Door Frame	Metal	0.00	NA	NA
Yellow	Exterior	Wall	Cinderblock	0.02	NA	NA
Yellow	Exterior	Wall	Metal	0.12	NA	NA
Brown	Exterior	Wall	Concrete	0.00	NA	NA
Building 5						
Tan	Interior	Wall	Cinderblock	0.00	NA	NA
Tan	Interior	Door	Metal	0.00	NA	NA
Tan	Interior	Door Frame	Metal	0.00	NA	NA
Grey	Interior	Door Frame	Metal	0.00	NA	NA
Grey	Interior	Door	Metal	0.00	NA	NA
Yellow	Interior	Wood	Cinderblock	0.12	NA	NA
Beige	Exterior	Wall	Cinderblock	0.00	NA	NA
Building 6						
Yellow	Exterior	Wall	Brick	0.00	NA	NA
Yellow	Exterior	Wall	Cinderblock	0.00	NA	NA
Silver	Exterior	Door Frame	Metal	0.00	NA	NA
Grey	**Exterior (East Side)**	**Door**	**Metal**	**>5.00**	**No**	**20 SF**
Grey	**Exterior (East Side)**	**Door Frame**	**Metal**	**>5.00**	**No**	**5 SF**
White	Interior	Wall	Brick	0.00	NA	NA
White	Interior	Door Frame	Metal	0.00	NA	NA
White	Interior	Door	Metal	0.00	NA	NA
Blue	Stock Room	Beam	Metal	0.00	NA	NA
Black	Stock Room	Door	Metal	0.00	NA	NA
Black	Stock Room	Door Frame	Metal	0.00	NA	NA
White	Stock Room	Door	Metal	0.00	NA	NA
White	Stock Room	Door Frame	Metal	0.00	NA	NA
White	Stock Room	Wall	Cinderblock	0.00	NA	NA

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
White	Stock Room	Ceiling Beams	Metal	0.00	NA	NA
Yellow	**Storage Room**	**Stair Rail**	**Metal**	**4.70**	**No**	**30 SF**
Brown/Red	**Storage Room**	**Stair Rail**	**Metal**	**>5.00**	**No**	**10 SF**
White	**Storage Room**	**Ceiling**	**Concrete**	**>5.00**	**NA**	**1,200 SF**
White	Storage Room	Pipe	Metal	0.00	No	NA
Red/Brown	**2nd Floor Storage Room**	**Support Beam**	**Metal**	**>5.00**	**No**	**30 SF**
White	Garage	Stairs	Metal	0.00	NA	NA
Yellow	Bathroom	Wall Tile	Ceramic	0.03	NA	NA
Grey	Bathroom	Door	Metal	0.00	NA	NA
White	Bathroom	Door Frame	Metal	0.00	NA	NA
Grey	Garage	Support Beam	Metal	0.02	NA	NA
White	Garage	Door	Metal	0.01	NA	NA
White	Garage	Wall	Metal	0.00	NA	NA
Brown	Hall to Office	Door Frame	Wood	0.00	NA	NA
White	**Hall to Storage Room**	**Door**	**Metal**	**4.44**	**No**	**10 SF**
White	Hall to Storage Room	Door Frame	Metal	0.11	NA	NA
Brown	Hall to Office	Window Frame	Wood	0.06	NA	NA
Brown	Hall to Office	Door	Wood	0.10	NA	NA
Orange	Office	Wall	Brick	0.08	NA	NA
Blue	Office	Door Frame	Wood	0.00	NA	NA
Blue	Office	Door	Wood	0.12	NA	NA
Blue	Office	Window	Wood	0.16	NA	NA
White	Hall to Office	Ceiling	Wood	0.06	NA	NA
Building 7						
Yellow	**Building 7**	**Support Beam**	**Metal**	**2.17**	**Yes**	**20 SF**
Silver	Building 7	Support Beam	Metal	0.00	NA	NA
Silver	Building 7	Siding	Metal	0.00	NA	NA
Building 8						
Yellow	**Main Warehouse**	**Support Beam**	**Metal**	**1.47**	**Yes**	**12,000 SF**
Yellow	Main Warehouse	Post	Concrete	0.45	NA	NA
Yellow	**East/Center Stairwell**	**Support Beams and Railings**	**Metal**	**1.56**	**Yes**	**200 SF**
Yellow	East Stairwell	Steps	Metal	0.00	NA	NA

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
White	Main Warehouse Upper Offices	Wall	Drywall	0.00	NA	NA
Grey	Main Warehouse Upper Offices	Window Frame	Wood	0.00	NA	NA
Grey	Main Warehouse Upper Offices	Door Frame	Wood	0.00	NA	NA
White	Main Warehouse Upper Offices	Ceiling	Drywall	0.00	NA	NA
Grey	Main Warehouse Lower Offices	Door	Metal	0.00	NA	NA
Yellow	**Southeast**	**Door Frame**	**Metal**	**2.19**	**Yes**	**200 SF**
White	Southeast	Door	Metal	0.87	NA	NA
Red	**North Office Area**	**Door**	**Metal**	**1.13**	**No**	**500 SF**
Red	**North Office Area**	**Door Frame**	**Metal**	**1.30**	**No**	**200 SF**
Tan	North Office Area	Wall	Cinderblock	0.00	NA	NA
White	North Office Area	Wall	Cinderblock	0.00	NA	NA
Teal	North Office Area	Wall	Cinderblock	0.00	NA	NA
Beige	North Bathroom	Wall Tile	Ceramic	0.00	NA	NA
White	North Bathroom	Ceiling	Drywall	0.00	NA	NA
White	**Outer Area**	**Support Beam**	**Metal**	**2.11**	**No**	**3,000 SF**
White	Exterior	Wall	Cinderblock	0.00	NA	NA
Off-White	Exterior	Wall	Metal	0.06	NA	NA
Tan	North Central 2nd Floor Offices	Window Frame	Wood	0.00	NA	NA
Building 9						
Yellow	**Main Plant (NE)**	**Post**	**Concrete**	**1.90**	**Yes**	**30 SF**
Yellow	**South Garage**	**Door**	**Metal**	**1.90**	**Yes**	**10 SF**
Grey	South Side	Support Beam	Metal	0.00	NA	NA
Brown/Red	South Side	Support Beam	Metal	0.00	NA	NA
Yellow	Main Plant	Support Beam	Metal	0.00	NA	NA
Yellow	Main Plant	Support Column	Concrete	0.00	NA	NA
Yellow	Main Plant	Guard Rail	Metal	0.00	NA	NA
Grey	North Plant	Support Beam	Metal	0.24	NA	NA
Grey	North Plant	Door	Metal	0.00	NA	NA
Grey	North Plant	Door Frame	Metal	0.00	NA	NA
Yellow	**North Plant**	**Stair Railing**	**Metal**	**1.91**	**No**	**10 SF**
Grey	North Plant	Wall	Cinderblock	0.04	NA	NA
Yellow	**North Plant**	**Guard Post**	**Concrete**	**3.58**	**Yes**	**10 SF**
Blue	North Plant	Exterior Wall	Cinderblock	0.00	NA	NA

TABLE 2 (Continued)

SUMMARY OF LBP SCREENING
ELKEM CARBIDE – KEOKUK, IOWA

Paint Color	Location	Component	Substrate	XRF Reading (mg/cm^2)	Damaged*	Quantity**
Blue	**North Plant**	**Guard Post**	**Metal**	**3.73**	**Yes**	**10 SF**
Yellow	**North Garage**	**Door**	**Metal**	**1.42**	**No**	**10 SF**
Blue	North Plant	Door Frame	Metal	0.00	NA	NA
Red	Exterior North	Support Beam	Metal	0.04	NA	NA
Blue	Northeast Side	Wall	Cinderblock	0.00	NA	NA
Blue	Northwest Side	Wall	Cinderblock	0.00	NA	NA
Black	Northwest Office	Door	Metal	0.00	NA	NA

Notes:

Bolded results indicate positive identification of LBP (>1 mg/cm^2).

* This column identifies LBP surfaces that are damaged. If no damage is present prior to demolition activities, preliminary removal of chipping and peeling paint is not necessary.

** This is only an estimated quantity of this material and should not be used for bidding purposes. Tetra Tech recommends any contractor bidding on removal of this material visually verify the quantity.

>	Greater than
mg/cm^2	Milligrams per square centimeter
LBP	Lead-based paint
NA	Not applicable
SF	Square feet
XRF	X-ray fluorescence

8.0 HAZARDOUS MATERIALS INVENTORY FINDINGS

The HHW and hazardous materials inventory is summarized in Tables 3A-3I below.

TABLE 3A

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 1
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	360
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	12
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Other	1 Water Heater
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	180
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC) Refrigerants	
Air Conditioners	
Water Fountains	1
Fire Extinguishers	2
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	6
Other electronic recyclables	3 Printers
Oils, containers	
Paints	
Solvents	2 – latex
Hydraulic lifts	
Tanks (aboveground, underground)	

TABLE 3B

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 2
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	2
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	21: 55-gallon drums
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	

TABLE 3C

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 3
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	60
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	30
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	1
Water Fountains	1
Fire Extinguishers	1
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	1 ISCO sampler
Oils, containers	
Paints	3: 1-gallon cans
Solvents	1 gallon dimethylformamide
Hydraulic lifts	
Tanks (aboveground, underground)	
Other	2.5 liters ammonium hydroxide; x-ray equipment; lab equipment

TABLE 3D

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 4
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	120
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	60
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	1
Fire Extinguishers	
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	

TABLE 3E

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 5
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	1
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	

TABLE 3F

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 6
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	64
Compact Fluorescent (CFL)	
Neon	
Other	10 halogen
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Other	10 halogen
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	1 tractor
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	32
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	3
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	Four 1-gallon oil; one 2-gallon oil; three 55-gallon oil; two 5-gallon oil
Paints	Two 1-gallon primer
Solvents	55-gallon Aqua-Sol
Hydraulic lifts	2
Tanks (aboveground, underground)	3 propane tanks
Other	Three 1-gallon antifreeze; one 55-gallon antifreeze; one 5-gallon waterproofing sealer; harvesting lubricant; one 5-gallon transmission fluid

TABLE 3G

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 7
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	55-gallon oil; 2-gallon gasoline; motor with oil
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	
Other	6 unlabeled drums

TABLE 3H

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 8
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	22
Compact Fluorescent (CFL)	
Neon	
Other	40 halogen
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Other	40 halogen
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	9
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	Two 5-gallon oil; one 55-gal oil
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	

TABLE 3I

SUMMARY OF HAZARDOUS MATERIALS INVENTORY – BUILDING 9
ELKEM CARBIDE – KEOKUK, IOWA

Type of Household Hazardous Waste	Assessed Quantity
Lamps	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Other	59 halogen
Non-PCB Ballasts	
Fluorescent	
Compact Fluorescent (CFL)	
Neon	
Other	59 halogen
Batteries	
Smoke Detectors	
Exit Signs	
Automobile	
Heating Ventilation and Air Conditioning	
Thermostats	
Boilers, Furnaces, Water Heaters, and Tanks	
Mercury flame sensor (adjacent to pilot lights)	
Control Switches	
Polychlorinated Biphenyls (PCB): transformers, light ballasts	
Transformers	
PCB Ballasts	
Non-PCB Ballasts	
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC)	
Air Conditioners	
Water Fountains	
Fire Extinguishers	1
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	
Other electronic recyclables	
Oils, containers	
Paints	
Solvents	
Hydraulic lifts	
Tanks (aboveground, underground)	1 aboveground storage tank (AST), 3 air compressors; 1 South LeRoi compressor
Other	13 tires, 55-gallon drum (1/3 full) unlabeled

9.0 RECOMMENDATIONS

Based on survey observations and sample analytical results, Tetra Tech recommends the following actions before remodeling or demolition of the subject property buildings:

9.1 ACM

- Regulated ACM was identified within Building 1 on the subject property in approximately 110 ft^2 of 12" X 12" orange patterned floor tile in the kitchen. The floor tile was represented by sample 1-FT6-1. Laboratory results indicated that the floor tile contained 5-percent chrysotile asbestos. Because of asbestos in the floor tile, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 1 on the subject property in approximately 800 ft^2 of 9" X 9" brown floor tile in the south entrance and conference room. The floor tile was represented by samples 1-FT7-1, -2, and -3. Laboratory results indicated that the floor tile contained 6-percent chrysotile asbestos. Because of asbestos in the floor tile, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified on the exterior windows of Building 3 on the subject property in approximately 20 linear feet of window glaze. The window glaze was represented by samples 3-WG-1, -2, and -3. Laboratory results indicated that the window glaze contained 4-percent chrysotile asbestos. Because of asbestos in the window glaze, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 4 on the subject property in approximately 800 ft^2 of wall mastic behind paneling in the offices. The wall mastic was represented by samples 4-WM-1, -2, and -3. Laboratory results indicated that the wall mastic contained 12-percent chrysotile asbestos. Because of asbestos in the wall mastic, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

- Regulated ACM was identified within Building 9 on the subject property in approximately 10,000 ft^2 of transite paneling. The transite paneling was represented by samples 9-TR-1, -2, and -3. Laboratory results indicated that the transite paneling contained 20-percent chrysotile asbestos. Because of asbestos in the transite paneling, it should be removed by a licensed asbestos abatement contractor before any renovation or demolition disturbs the material. The removed waste must be transported to a disposal site able to accept non-friable ACM. If the material is not to be disturbed, it may remain in place.

9.2 LBP

- The Department of Housing and Urban Development (HUD) considers LBP as paint with lead levels above 1.0 mg/cm2. If the LBP surfaces are impacted during the renovations, or if the buildings are going to be demolished, Tetra Tech recommends the contractor conducting the renovation/demolition, comply with the Occupational Safety and Health Administration (OSHA) Lead in Construction Standard, Title 29 of Code of Federal Regulations (CFR), Part 1926.62. In addition, Tetra Tech recommends a sample be collected from the debris pile for a Toxicity Characteristic Leaching Procedure (TCLP) analysis (Title 40 CFR 261.24) prior to transport to the landfill. A representative sample should be collected and analyzed for all eight metals specified in 40 CFR Part 261.24 (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). This would allow determination of the proper method of disposal of the materials. Of the 224 XRF readings from painted surfaces, 43 lead concentrations exceeded 1.0 mg/cm^2. The following is a summary of those positive readings:

    - LBP was identified in Building 1 on white concrete walls in the northeast open area and south entry; off-white plaster ceiling, green wall concrete, and white wall concrete at the bottom of the stairs; red metal door in the kitchen; and tan support pole in the covered parking area totaling approximately 3,980 square feet (ft^2).

    - LBP was identified in Building 2 on grey metal support beams; yellow concrete floor; and yellow metal door frame on the south garage door totaling approximately 3,060 ft^2.

    - LBP was identified in Building 3 on tan and white brick walls, tan and white concrete pillars, tan ceramic walls, and tan wood walls in the locker room; brown and beige ceramic wall tile, brown and white concrete pillars, blue concrete ceiling, and brown and tan brick walls in the entryway; brown wood exterior windows; blue brick walls on the west side; white brick walls and blue and white wood walls on the lab side; black wood door and brown wood screen door on the exterior west lab; light brown metal support beam, light brown wood overhand, and tan wood window frames on the exterior totaling approximately 9,794 square ft^2.

    - LBP was identified in Building 6 on grey metal doors and door frames on the exterior east side; yellow and brown/red metal stair railing and white concrete ceiling in the storage room; red/brown metal support beams in the 2nd floor storage room; and white metal door in the hall to the storage room totaling approximately 1,295 ft^2.

    - LBP was identified in Building 7 on yellow metal support beams totaling approximately 20 ft^2.

    - LBP was identified in Building 8 on yellow metal support beams in the main warehouse; yellow metal support beams and railings in the east/center stairwell; yellow metal door frame on the southeast side; red metal door and door frame in the north office area; and white metal support beams in the outer area totaling approximately 16,100 ft^2.

    - LBP was identified in Building 9 on yellow concrete post in the main plant, yellow metal door in the south garage, yellow metal stair railing and concrete guard post in the north plant, blue metal guard post in the north plant, and yellow metal door in the north garage totaling approximately 80 ft^2.

9.3 HHW

HHW and hazardous materials were inventoried during the survey. Tetra Tech recommends proper disposal of the materials based on their characteristics prior to demolition of the subject property buildings.

10.0 ASSUMPTIONS AND DEVIATIONS

All subject property buildings were visually surveyed for suspect ACM and LBP. Because of limitations on destructive sampling methods, additional suspect materials may be present but not detected in the walls, voids, or other concealed areas. An inventory of all HHW and other potentially hazardous materials was also performed. Standing water in the basements of Buildings 3 and 6 rendered the areas inaccessible. All other areas were accessible and inspected.

11.0 REFERENCES

Agency for Toxic Substance and Disease Registry (ATSDR). 2008. Asbestos: Health Effects. Accessed February 10, 2014. http://www.atsdr.cdc.gov/asbestos/asbestos/health_effects/

Terracon Consultants, Inc. (Terracon). 2009. Phase I Environmental Site Assessment. Former Elkem Carbide.

Tetra Tech Inc. (Tetra Tech). 2016. *Quality Assurance Project Plan for Phase II Targeted Brownfields Assessment, Former Elkem Carbide*. March.

U.S. Department of Housing and Urban Development (HUD). 1997. *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX A

INSPECTOR CERTIFICATIONS

M·E·T·A

Mayhew Environmental Training Associates

INCORPORATED

Certificate # MEEDA6BDC5FDED467

Kaitlyn Bahr

has on 6/16/2016, in Lawrence, KS
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

4-hr. Asbestos Building Inspector Refresher

as approved by MO & the US EPA under 40 CFR 763 (AHERA) from 6/16/2016 to 6/16/2016
and
passed the associated exam on 6/16/2016 with a score of at least 70%

KANSAS MAYHEW INC. 1987 EST. 1985 ENVIRONMENTAL TRAINING ASSOCIATES SAFETY IN GOD ALONE

Dean Althage
Instructor

Thomas Mayhew
President

SSN: XXX-XX-7582
Expiration: 6/16/2017

P.O. Box 4693 - Lawrence, KS. 66047 - 800.444.6382
www.metaenvironmental.net

M·E·T·A

Mayhew Environmental Training Associates

INCORPORATED

Certificate # MED5E1B3A730C34CD

Joann R. Jeplawy

has on 1/6/2016, in Lawrence, KS
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

3-day Asbestos Building Inspector Initial

as approved by MO & the US EPA under 40 CFR 763 (AHERA) from 1/4/2016 to 1/6/2016
and
passed the associated exam on 1/6/2016 with a score of at least 70%

KANSAS MAYHEW EST. 1985 INC. 1987 ENVIRONMENTAL TRAINING ASSOCIATES SAFETY IN GOD ALONE

Bob Baer
Instructor

Thomas Mayhew
President

SSN: XXX-XX-2734
Expiration: 1/6/2017

P.O. Box 4693 - Lawrence, KS. 66047 - 800.444.6382
www.metaenvironmental.net

M·E·T·A

Mayhew Environmental Training Associates

INCORPORATED

Certificate # ME321F4A260641424

Jeffrey Mitchell

has on 1/27/2016, in Lawrence, KS
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

4-hr. Asbestos Building Inspector Refresher

as approved by MO & the US EPA under 40 CFR 763 (AHERA) from 1/27/2016 to 1/27/2016
and
passed the associated exam on 1/27/2016 with a score of at least 70%

KANSAS MAYHEW INC. 1987 ENVIRONMENTAL TRAINING ASSOCIATES EST. 1985 SAFETY IN GOD ALONE

Thomas Mayhew
Instructor

SSN: XXX-XX-1403
Expiration: 1/27/2017

Thomas Mayhew
President

P.O. Box 4693 - Lawrence, KS. 66047 - 800.444.6382
www.metaenvironmental.net

JEFFREY MITCHELL

DOB: 04-05-1977

Issued: 02-01-2016

This person is licensed to perform asbestos work in the State of Iowa. ID card is intended for official use only and must be present on jobsite.

License Type	Number	Expires
INSPECTOR	16-5894	01-27-2017

DIVISION OF IOWA LABOR

Asbestos

Michael A. Mauro
Labor Commissioner

M·E·T·A

Mayhew Environmental Training Associates

INCORPORATED

Certificate # MEB25263C06FCF4CA

Thomas Rebecchi

has on 8/12/2015, in Lawrence, KS
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646

3-day Asbestos Building Inspector Initial

as approved by MO & the US EPA under 40 CFR 763 (AHERA) from 8/10/2015 to 8/12/2015
and
passed the associated exam on 8/12/2015 with a score of at least 70%

Dean Althage
Instructor

Thomas Mayhew
President

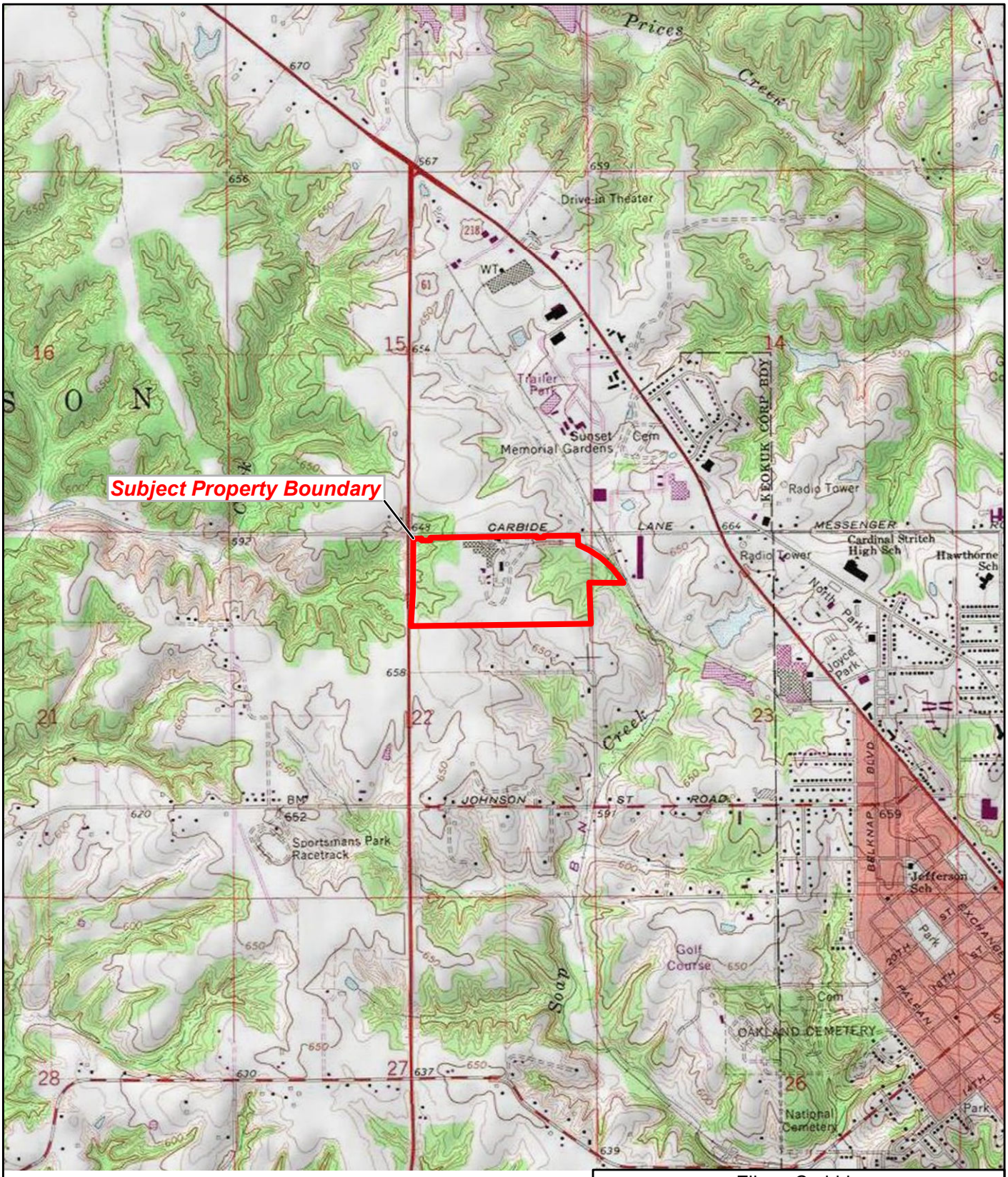
KANSAS MAYHEW ENVIRONMENTAL TRAINING ASSOCIATES INC. 1987 EST. 1985 SAFETY IN GOD ALONE

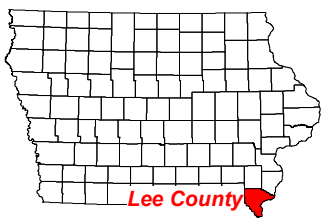
SSN: XXX-XX-4202
Expiration: 8/12/2016

P.O. Box 4693 - Lawrence, KS. 66047 - 800.444.6382
www.metaenvironmental.net

APPENDIX B

FIGURES





N

0 1,000 2,000

Feet

Source: USGS Keokuk, IA 7.5 Minute Topo Quad, 1977

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 1
Site Location Map

TETRA TECH

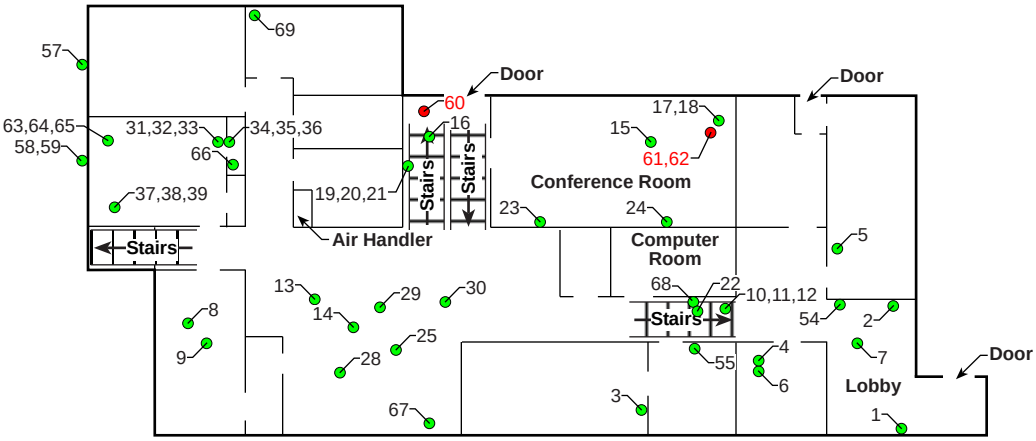
Date: 1/20/2016 Drawn By: Nick Wiederholt Project No: X9025.14.0002.019.017

X:\G\9025\0002\2019\017\Projects\mxd\Figure1.mxd

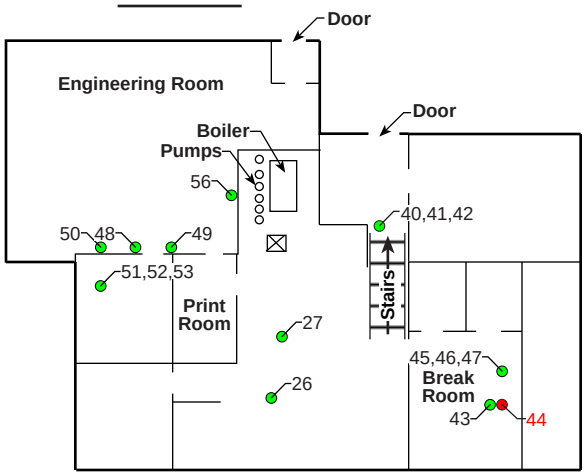
Sample Key Table

Key	Sample No.
Asbestos	
1	1-CBM-1
2	1-CBM-2
3	1-CBM-3
4	1-FT-1
5	1-FT-2
6	1-FT-3
7	1-CT-1
8	1-CT-2
9	1-CT-3
10	1-ST-1
11	1-ST-2
12	1-ST-3
13	1-CT2-1
14	1-CT2-2
15	1-CT2-3
16	1-FT2-1
17	1-FT2-2
18	1-FT2-3
19	1-CBM2-1
20	1-CBM2-2
21	1-CBM2-3
22	1-DWJC-1
23	1-DWJC-2
24	1-DWJC-3
25	1-PLSC-1
26	1-PLSC-2
27	1-PLSC-3
28	1-GP-1
29	1-GP-2
30	1-GP-3
31	1-FT3-1
32	1-FT3-2
33	1-FT3-3
34	1-FT4-1
35	1-FT4-2
36	1-FT4-3
37	1-CA-1
38	1-CA-2
39	1-CA-3
40	1-ST2-1
41	1-ST2-2
42	1-ST2-3
43	1-FT5-1
44	1-FT6-1
45	1-CT3-1
46	1-CT3-2
47	1-CT3-3
48	1-CBM3-1
49	1-CBM3-2
50	1-CBM3-3
51	1-CT4-1
52	1-CT4-2
53	1-CT4-3
54	1-PW-1
55	1-PW-2
56	1-PW-3
57	1-WC-1
58	1-WC-2
59	1-WC-3
60	1-FT7-1
61	1-FT7-2
62	1-FT7-3
63	1-FP-1
64	1-FP-2
65	1-FP-3
66	1-CBM4-1
67	1-FT8-1
68	1-FT8-2
69	1-FT8-3

Main Floor



Basement



Legend

- Asbestos Containing Material Sample Location
- Non-asbestos Containing Material Sample Location

Note: Refer to Sample Key Table for corresponding sample numbers.

N

NOT TO SCALE

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2a
Asbestos Sample Location Map - Building 1

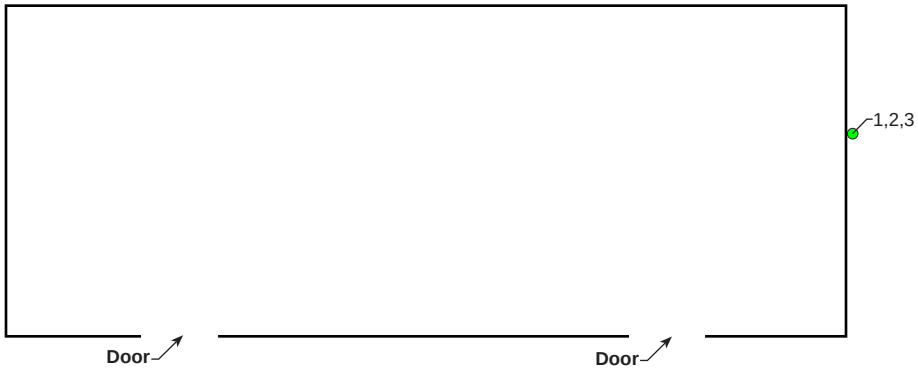
TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\019\017\RH10\Figure2a RH10

Sample Key Table

Key	Sample No.
Asbestos	
1	2-WG-1
2	2-WG-2
3	2-WG-3



Legend

- Non-asbestos Containing Material Sample Location

NOT TO SCALE

Note: Refer to Sample Key Table for corresponding sample numbers.

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2b
Asbestos Sample Location Map - Building 2

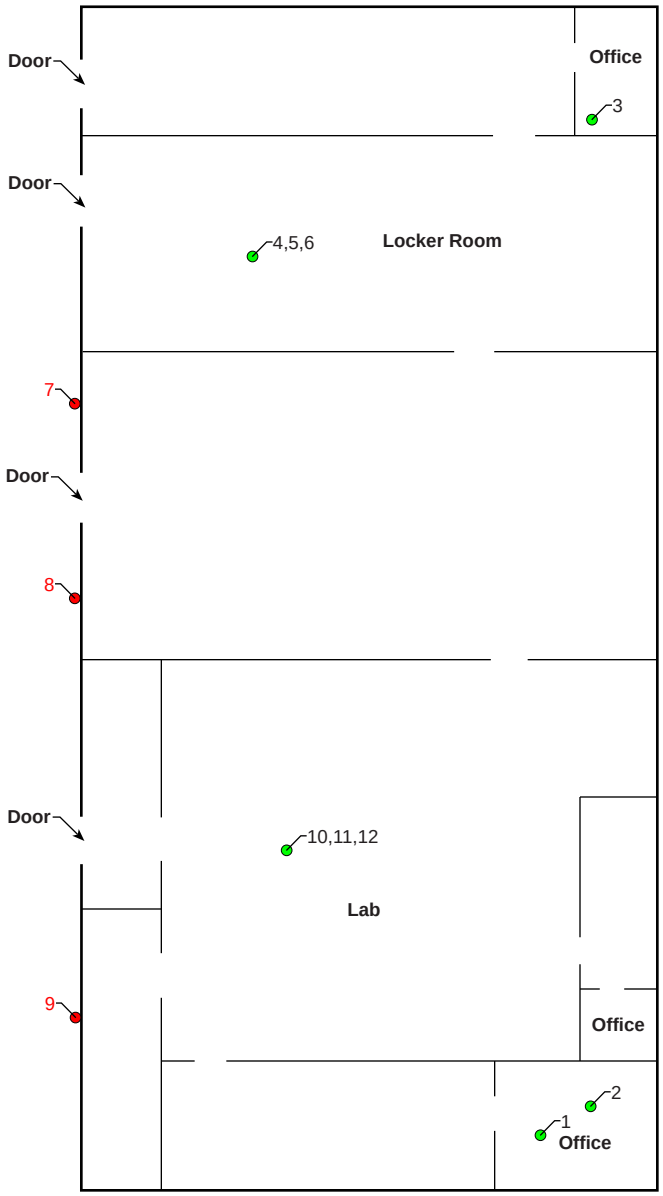
TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\019\017\RH10\Figure2b RH10

Sample Key Table

Key	Sample No.
Asbestos	
1	3-CT-1
2	3-CT-2
3	3-CT-3
4	3-TSI-1
5	3-TSI-2
6	3-TSI-3
7	3-WG-1
8	3-WG-2
9	3-WG-3
10	3-TSI2-1
11	3-TSI2-2
12	3-TSI2-3



Legend

- Asbestos Containing Material Sample Location
- Non-asbestos Containing Material Sample Location

Note: Refer to Sample Key Table for corresponding sample numbers.

N

NOT TO SCALE

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2c
Asbestos Sample Location Map - Building 3

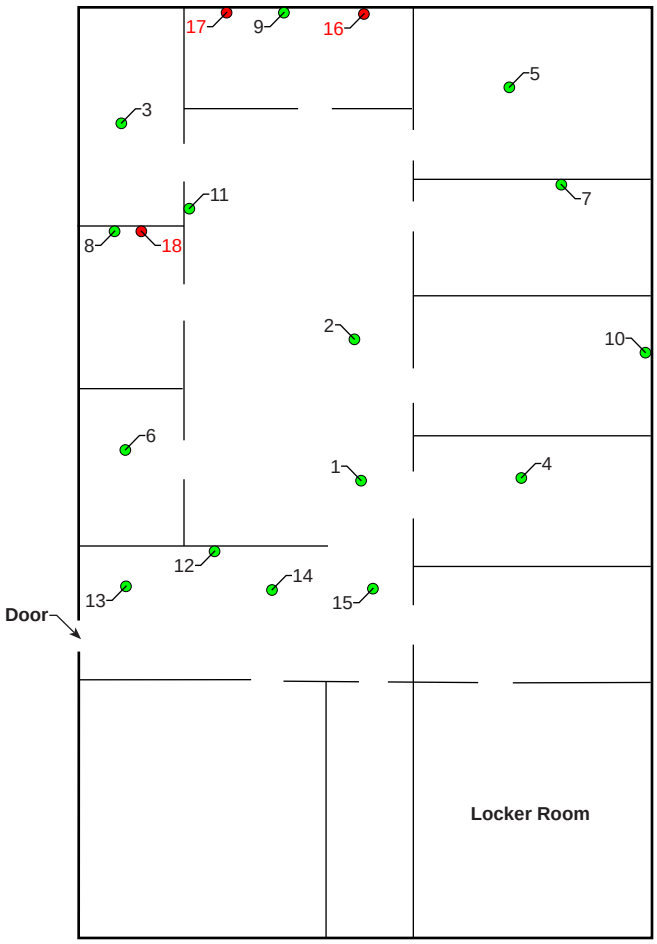
TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\019\017\FH10\Figure2c.FH10

Sample Key Table

Key	Sample No.
Asbestos	
1	4-FT-1
2	4-FT-2
3	4-FT-3
4	4-CT-1
5	4-CT-2
6	4-CT-3
7	4-DWJC-1
8	4-DWJC-2
9	4-DWJC-3
10	4-CBM-1
11	4-CBM-2
12	4-CBM-3
13	4-FT2-1
14	4-FT2-2
15	4-FT2-3
16	4-WM-1
17	4-WM-2
18	4-WM-3



Legend

- Asbestos Containing Material Sample Location
- Non-asbestos Containing Material Sample Location

Note: Refer to Sample Key Table for corresponding sample numbers.

N

NOT TO SCALE

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

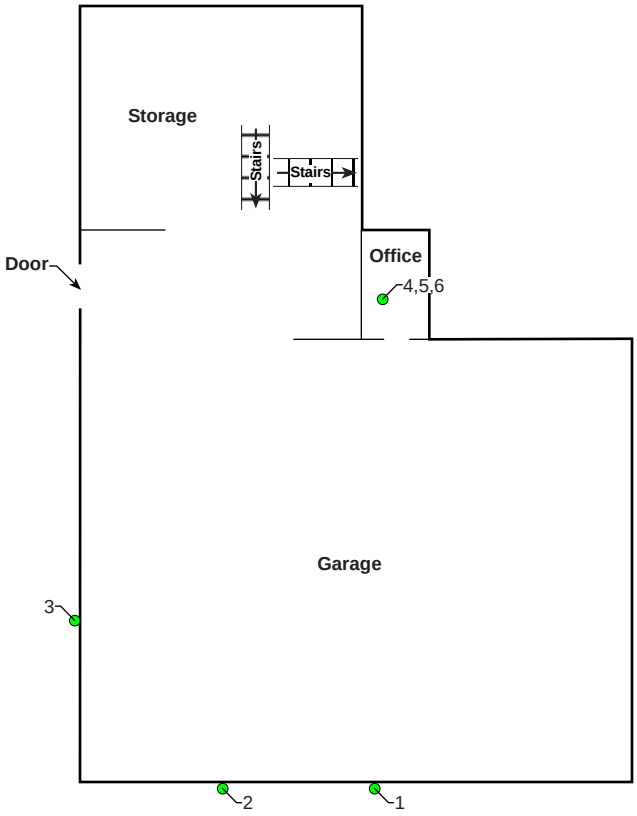
Figure 2d
Asbestos Sample Location Map - Building 4

TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\2019\017\FH10\Figure2d FH10

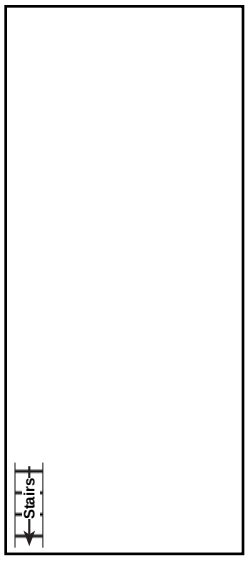
First Floor



Sample Key Table

Key	Sample No.
Asbestos	
1	6-WG-1
2	6-WG-2
3	6-WG-3
4	6-CT-1
5	6-CT-2
6	6-CT-3

Second Floor



Legend

- Non-asbestos Containing Material Sample Location

NOT TO SCALE

Note: Refer to Sample Key Table for corresponding sample numbers.

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2e

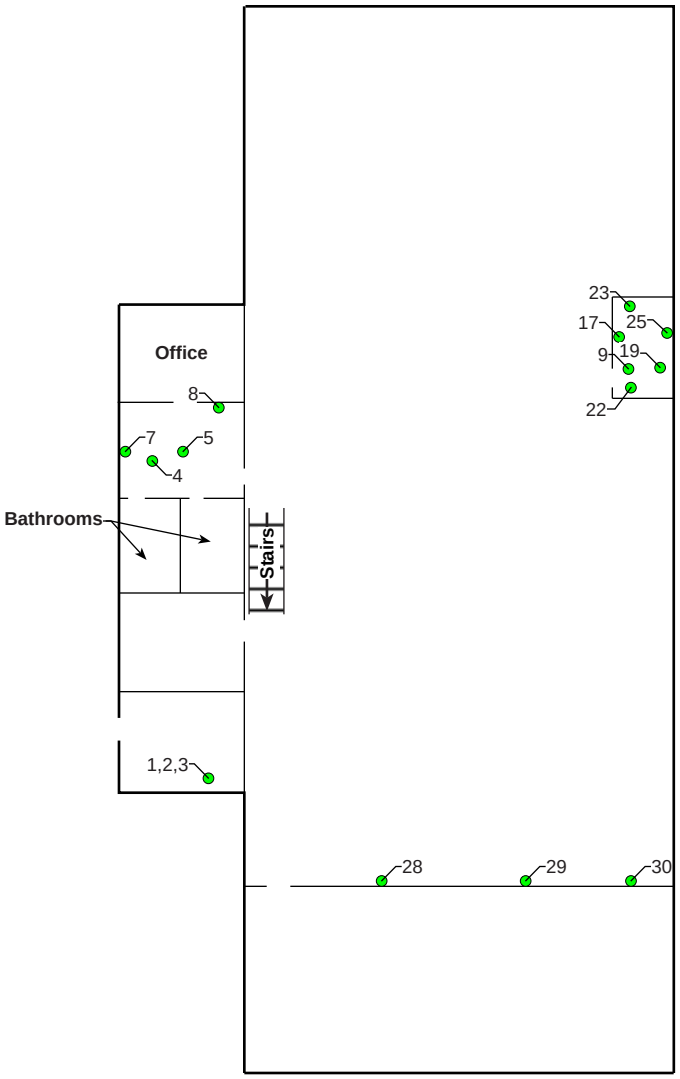
Asbestos Sample Location Map - Building 6

TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\019\017\RH10\Figure2e RH10

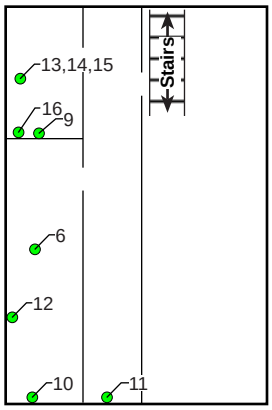
First Floor

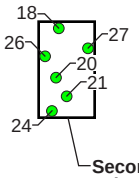


Sample Key Table

Key	Sample No.
Asbestos	
1	8-TSI-1
2	8-TSI-2
3	8-TSI-3
4	8-CT-1
5	8-CT-2
6	8-CT-3
7	8-CBM-1
8	8-CBM-2
9	8-CBM-3
10	8-WG-1
11	8-WG-2
12	8-WG-3
13	8-CT2-1
14	8-CT2-2
15	8-CT2-3
16	8-DWJC-1
17	8-DWJC-2
18	8-DWJC-3
19	8-FT-1
20	8-FT-2
21	8-FT-3
22	8-CTX-1
23	8-CTX-2
24	8-CTX-3
25	8-CBM2-1
26	8-CBM2-2
27	8-CBM2-3
28	8-VER-1
29	8-VER-2
30	8-VER-3

Second Floor - Office Area





Legend

- Non-asbestos Containing Material Sample Location

NOT TO SCALE

Note: Refer to Sample Key Table for corresponding sample numbers.

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2f
Asbestos Sample Location Map - Building 8

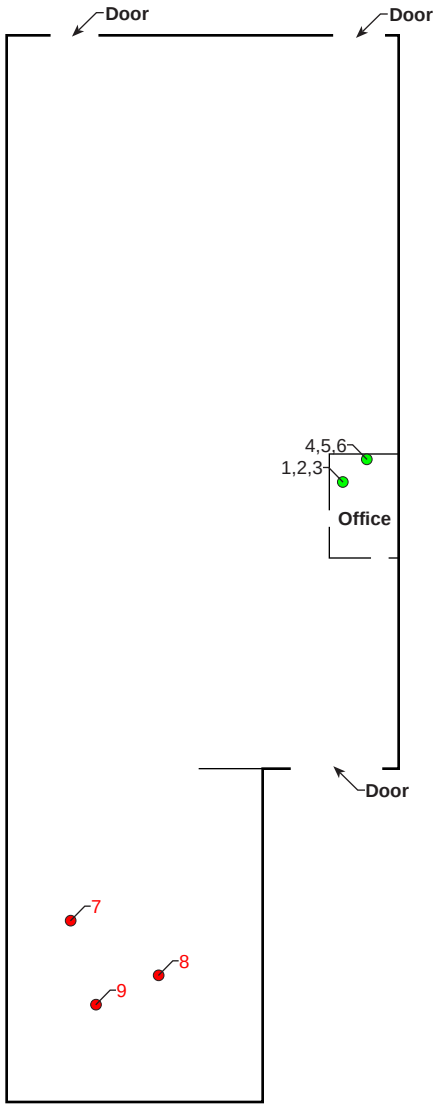
TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\019\017\FH10\Figure2f FH10

Sample Key Table

Key	Sample No.
Asbestos	
1	9-CT-1
2	9-CT-2
3	9-CT-3
4	9-DW-1
5	9-DW-2
6	9-DW-3
7	9-TR-1
8	9-TR-2
9	9-TR-3



Legend

- Asbestos Containing Material Sample Location
- Non-asbestos Containing Material Sample Location

NOT TO SCALE

Note: Refer to Sample Key Table for corresponding sample numbers.

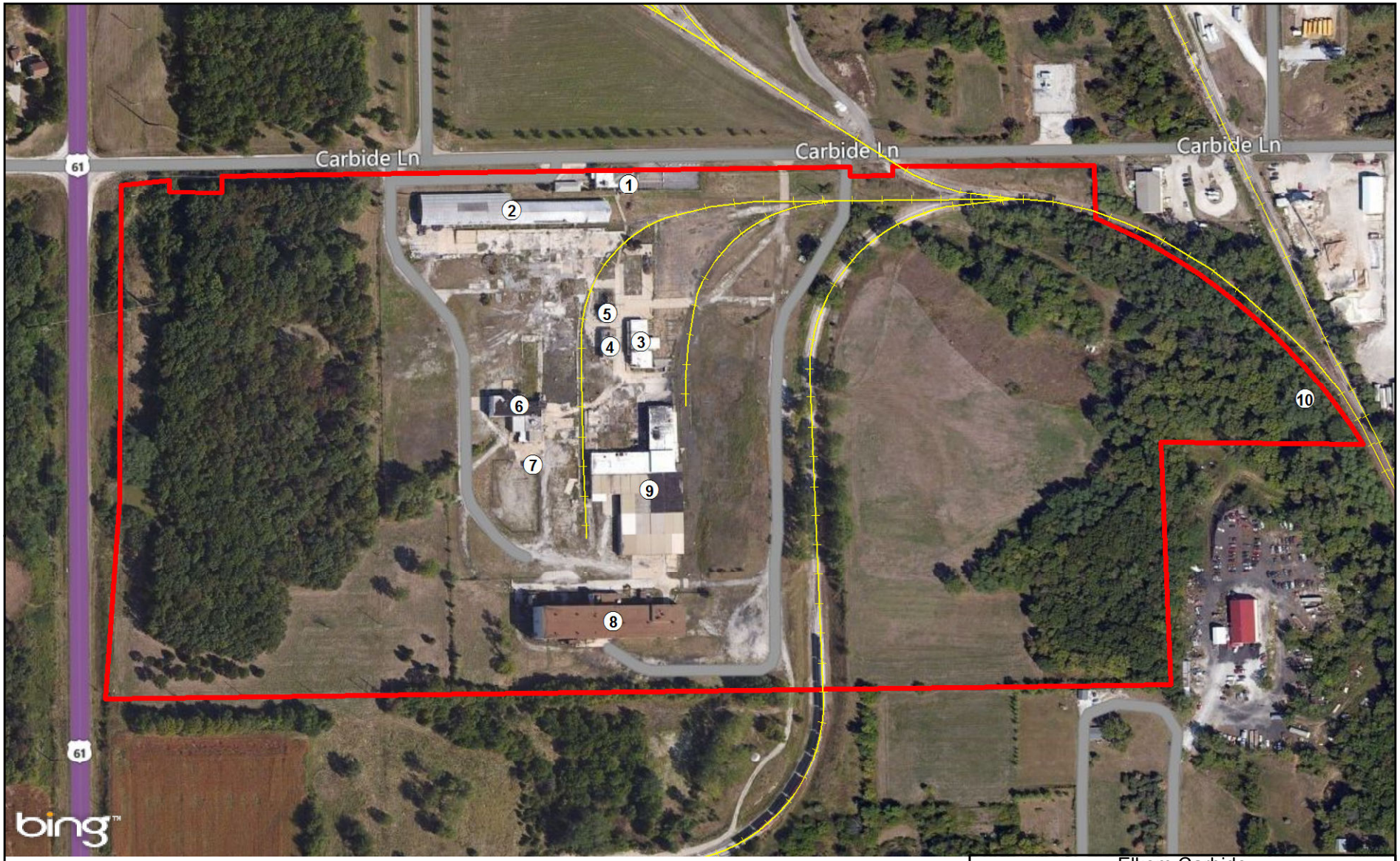
Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2g
Asbestos Sample Location Map - Building 9

TETRA TECH

Date: 8/8/16 | Drawn By: Nick Wiederholt | Project No: X9025.14.0002.019.017

X:\G\9025\0002\2019\017\FH10\Figure2g FH10



Legend

② Building ID

Railroad

Subject property boundary

N

0 175 350

Feet

Source: ESRI, ArcGIS Online, Bing Maps Hybrid, 2011; Lee County Iowa, Web Mapping Application, 2016

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 3
Building Location Map

TETRA TECH

Date: 2/12/2016 Drawn By: Nick Wiederholt Project No: X9025.14.0002.019.017

X:\G\9025\0002\019017\Projects\mxd\Figure3.mxd

APPENDIX C

ACM ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	1-CBM-1	Layered	Brown Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
001a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
002	1-CBM-2	Layered	Brown Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
002a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
003	1-CBM-3	Layered	Brown Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
003a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
004	1-FT-1	Layered	Red Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
004a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
005	1-FT-2	Layered	Red Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
005a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
006	1-FT-3	Layered	Red Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
006a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
007	1-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 40 Glass Fiber 40	Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
008	1-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 40 Glass Fiber 40	Paint
009	1-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 40 Glass Fiber 40	Paint
010	1-ST-1	Layered	Pink Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3
010a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
011	1-ST-2	Layered	Pink Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3
011a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
012	1-ST-3	Layered	Pink Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
012a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
013	1-CT2-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
014	1-CT2-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
015	1-CT2-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
016	1-FT2-1	Layered	Gray Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
016a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
017	1-FT2-2	Layered	Gray Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
017a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
018	1-FT2-3	Layered	Gray Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
018a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
019	1-CBM2-1	Layered	Gray Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
019a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
020	1-CBM2-2	Layered	Gray Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
020a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
021	1-CBM2-3	Layered	Gray Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
021a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
022	1-DWJC-1	Layered	White Joint Compound	Asbestos Not Present	NA	CaCO3
022a		Layered	White Sheetrock	Asbestos Not Present	Cellulose 15	Gypsum
023	1-DWJC-2	Layered	White Joint Compound	Asbestos Not Present	NA	CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
023a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
024	1-DWJC-3	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
024a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
025	1-PLSC-1	Layered	Tan Skim Coat	Asbestos Not Present	NA		CaCO3 Sand
025a		Layered	Gray Plaster	Asbestos Not Present	Hair	2	CaCO3 Sand
026	1-PLSC-2	Layered	Tan Skim Coat	Asbestos Not Present	NA		CaCO3 Sand
026a		Layered	Gray Plaster	Asbestos Not Present	Hair	2	CaCO3 Sand

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
027	1-PLSC-3	Layered	Tan Skim Coat	Asbestos Not Present	NA	CaCO3 Sand
027a		Layered	Gray Plaster	Asbestos Not Present	Hair 2	CaCO3 Sand
028	1-GP-1	Homogeneous	Brown Mastic	Asbestos Not Present	NA	Glue
029	1-GP-2	Homogeneous	Brown Mastic	Asbestos Not Present	NA	Glue
030	1-GP-3	Homogeneous	Brown Mastic	Asbestos Not Present	NA	Glue
031	1-FT3-1	Layered	Brown Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
031a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
031b		Layered	Black Paper	Asbestos Not Present	Cellulose 90	Tar
032	1-FT3-2	Layered	Brown Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
032a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
032b		Layered	Black Paper	Asbestos Not Present	Cellulose 90	Tar
033	1-FT3-3	Layered	Brown Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
033a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
033b		Layered	Black Paper	Asbestos Not Present	Cellulose 90	Tar
034	1-FT4-1	Layered	Gray Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
034a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
035	1-FT4-2	Layered	Gray Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
035a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
036	1-FT4-3	Layered	Gray Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
036a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
037	1-CA-1	Homogeneous	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
038	1-CA-2	Homogeneous	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
039	1-CA-3	Homogeneous	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
040	1-ST2-1	Layered	Gray Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3
040a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue CaCO3
041	1-ST2-2	Layered	Gray Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
041a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue CaCO3
042	1-ST2-3	Layered	Gray Stair Tread	Asbestos Not Present	NA	Vinyl CaCO3
042a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue CaCO3
043	1-FT5-1	Layered	Orange Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
043a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
044	1-FT6-1	Layered	Brown Floor Tile	Asbestos Present Chrysotile 5	NA	CaCO3 Vinyl

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
044a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
045	1-CT3-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
046	1-CT3-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
047	1-CT3-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 50 Glass Fiber 30	Perlite Paint
048	1-CBM3-1	Layered	White Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
048a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue CaCO3
049	1-CBM3-2	Layered	White Cove Base	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
049a		Layered	Brown Mastic	Asbestos Not Present	NA		Glue CaCO3
050	1-CBM3-3	Layered	White Cove Base	Asbestos Not Present	NA		Vinyl CaCO3
050a		Layered	Brown Mastic	Asbestos Not Present	NA		Glue CaCO3
051	1-CT4-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose	90	Paint
052	1-CT4-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose	90	Paint
053	1-CT4-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose	90	Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
054	1-PW-1	Homogeneous	White Wallboard	Asbestos Not Present	Cellulose 70	CaCO3
055	1-PW-2	Homogeneous	White Wallboard	Asbestos Not Present	Cellulose 70	Binder
056	1-PW-3	Homogeneous	White Wallboard	Asbestos Not Present	Cellulose 70	Binder
057	1-WC-1	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
058	1-WC-2	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
059	1-WC-3	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
060	1-FT7-1	Layered	Brown Floor Tile	Asbestos Present Chrysotile 6	NA	CaCO3 Vinyl

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
060a		Layered	Black Mastic	Asbestos Present Chrysotile 2	NA	Tar
061	1-FT7-2	Layered	Brown Floor Tile	Asbestos Present Chrysotile 6	NA	CaCO3 Vinyl
061a		Layered	Black Mastic	Asbestos Present Chrysotile 2	NA	Tar
062	1-FT7-3	Layered	Brown Floor Tile	Asbestos Present Chrysotile 6	NA	CaCO3 Vinyl
062a		Layered	Black Mastic	Asbestos Present Chrysotile 2	NA	Tar
063	1-FP-1	Homogeneous	Black Paper	Asbestos Not Present	Cellulose 70	Tar

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
064	1-FP-2	Layered	Black Paper	Asbestos Not Present	Cellulose 70	Tar
064a		Layered	Tan Mastic	Asbestos Not Present	NA	Glue
065	1-FP-3	Layered	Black Paper	Asbestos Not Present	Cellulose 70	Tar
065a		Layered	Tan Mastic	Asbestos Not Present	NA	Glue
066	1-CB34-1	Layered	Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
066a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue
067	1-FT8-1	Layered	Brown Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265857
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
067a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
068	1-FT8-2	Layered	Brown Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
068a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
069	1-FT8-3	Layered	Brown Floor Tile	Asbestos Not Present	NA	CaCO3 Vinyl
069a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue

Dee Ammerman, Analyst

7/8/2016
Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QUANTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	216857
	(Accept) Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Jeff Mitchell	Date:	6/28/16

Project Information	
Project Name:	Elkem Carbide Bldg 1
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
				7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day ✱

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	1-CBM-1	☑		cove base mastic		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	1-FT-1	☐		floor tile		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	1-CT-1	☐		ceiling tile		
8	↓ -2	☐		↓		
9	↓ -3	☐		↓		
10	1-ST-1	☑		stair tread		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

✱ per J. Mitchell 7/11/16 ~~PS~~

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 205857
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, ~~IA~~

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	1-ST-2	☑		stair tread		
12	↓ -3	☐		↓		
13	1-CT2-1	☐		ceiling tile		
14	↓ -2	☐		↓		
15	↓ -3	☐		↓		
16	1-FT2-1	☐		floor tile		
17	↓ -2	☐		↓		
18	↓ -3	☐		↓		
19	1-CBM2-1	☐		cove base mastic		
20	↓ -2	☐		↓		
21	↓ -3	☐		↓		
22	1-DWJC-1	☐		drywall / joint compound		
23	↓ -2	☐		↓		
24	↓ -3	☐		↓		
25	1-PLSC-1	☐		plaster/skim coat		
26	↓ -2	☐		↓		
27	↓ -3	☐		↓		
28	1-GP-1	☐		glue puck		
29	↓ -2	☐		↓		
30	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 205857
Accept Reject

Project Information		
Company: Tetra Tech	Project Name: Elkem Carbide	Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
31	1-FT3-1	☑		floor tile		
32	↓ -2	☐		↓		
33	↓ -3	☐		↓		
34	1-FT4-1	☐		↓		
35	↓ -2	☐		↓		
36	↓ -3	☐		↓		
37	1-CA-1	☐		carpet adhesive		
38	↓ -2	☐		↓		
39	↓ -3	☐		↓		
40	1-ST2-1	☐		stair tread		
41	↓ -2	☐		↓		
42	↓ -3	☐		↓		
43	1-FT5-1	☐		floor tile		
44	1-FT6-1	☐		↓		
45	1-CT3-1	☐		ceiling tile		
46	↓ -2	☐		↓		
47	↓ -3	☐		↓		
48	1-CBM3-1	☐		cove base mastic		
49	↓ -2	☐		↓		
50	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 210857
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
51	1-CTH-1	☑		ceiling tile		
52	↓ -2	☐		↓		
53	↓ -3	☐		↓		
54	1-PW-1	☐		wall panel		
55	↓ -2	☐		↓		
56	↓ -3	☐		↓		
57	1-WC-1	☐		caulk		
58	↓ -2	☐		↓		
59	↓ -3	☐		↓		
60	1-FT7-1	☐		floor tile		
61	↓ -2	☐		↓		
62	↓ -3	☐		↓		
63	1-FP-1	☐		floor paper		
64	↓ -2	☐		↓		
65	↓ -3	☐		↓		
66	1-CBM4-1	☐		cove base mastic		
67	1-FT8-1	☐		floor tile		
68	↓ -2	☐		↓		
69	↓ -3	☑		↓		
70		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265852
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/11/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 2
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	2-WG-1	Homogeneous	Pink Window Glazing	Asbestos Not Present	NA	CaCO3 Binder
002	2-WG-2	Homogeneous	Pink Window Glazing	Asbestos Not Present	NA	CaCO3 Binder
003	2-WG-3	Homogeneous	Pink Window Glazing	Asbestos Not Present	NA	CaCO3 Binder

Dee Ammerman, Analyst

7/11/2016
Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QUANTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	205852
Accept	Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 2
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
				7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	2-WG-1	☑		window glaze		
2	-2	☐		↓		
3	-3	☑		↓		
4		☐				
5		☐				
6		☐				
7		☐				
8		☐				
9		☐				
10		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

per J. Mitchell 7/11/16 pa

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265853
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/11/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 3
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
001	3-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
002	3-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
003	3-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
004	3-TSI-1	Layered	White Wrap	Asbestos Not Present	Cellulose Glass Fiber	20 30	CaCO3 Binder Foil
004a		Layered	Pink Insulation	Asbestos Not Present	Glass Fiber	100	
005	3-TSI-2	Layered	White Wrap	Asbestos Not Present	Cellulose Glass Fiber	20 30	CaCO3 Binder Foil
005a		Layered	Pink Insulation	Asbestos Not Present	Glass Fiber	100	

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265853
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/11/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 3
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
006	3-TSI-3	Layered	White Wrap	Asbestos Not Present	Cellulose 20 Glass Fiber 30	CaCO3 Binder Foil
006a		Layered	Pink Insulation	Asbestos Not Present	Glass Fiber 100	
007	3-WG-1	Layered	Black Caulk	Asbestos Not Present	NA	CaCO3 Binder
007a		Layered	Gray Window Glazing	Asbestos Present Chrysotile 4	NA	CaCO3
008	3-WG-2	Homogeneous	Gray Window Glazing	Asbestos Present Chrysotile 4	NA	CaCO3
009	3-WG-3	Layered	Black Caulk	Asbestos Not Present	NA	CaCO3 Binder

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265853
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/11/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 3
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
009a		Layered	Gray Window Glazing	Asbestos Present Chrysotile 4	NA	CaCO3
010	3-TSI2-1	Layered	White Coating	Asbestos Not Present	Cellulose 2	Sand Gypsum Paint
010a		Layered	Yellow Insulation	Asbestos Not Present	NA	Foam
011	3-TSI2-2	Layered	White Coating	Asbestos Not Present	Cellulose 2	Sand Gypsum Paint
011a		Layered	Yellow Insulation	Asbestos Not Present	NA	Foam
012	3-TSI2-3	Layered	White Coating	Asbestos Not Present	Cellulose 2	Sand Gypsum Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265853
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/11/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 3
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
012a		Layered	Yellow Insulation	Asbestos Not Present	NA	Foam

Carter Cox

Carter W. Cox, Analyst

7/11/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. _____
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	3-TSI2-2	☑		insulation		
2	↓ -3	☑		↓		
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
8		☐				
9		☐				
0		☐				
1		☐				
2		☐				
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
8		☐				
9		☐				
0		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265854
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	4-FT-1	Layered	Tan Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
001a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
002	4-FT-2	Layered	Tan Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
002a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
003	4-FT-3	Layered	Tan Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
003a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
004	4-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265854
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
005	4-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
006	4-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
007	4-DWJC-1	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile <1	NA	CaCO3 Gypsum
008	4-DWJC-2	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile <1	NA	CaCO3 Gypsum
009	4-DWJC-3	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile <1	NA	CaCO3 Gypsum
010	4-CBM-1	Layered	Dark Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265854
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
010a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
011	4-CBM-2	Layered	Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
011a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
012	4-CBM-3	Layered	Dark Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
012a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
013	4-FT2-1	Layered	Orange Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265854
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
013a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
014	4-FT2-2	Layered	Orange Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
014a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
015	4-FT2-3	Layered	Orange Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
015a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
016	4-WM-1	Homogeneous	Black Wall Mastic	Asbestos Present Chrysotile 12	NA	Binder
017	4-WM-2	Homogeneous	Black Wall Mastic	Asbestos Present Chrysotile 12	NA	Binder

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265854
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkem Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
018	4-WM-3	Homogeneous	Black Wall Mastic	Asbestos Present Chrysotile 12	NA	Binder

Cristal Veech

Cristal Veech, Analyst

7/8/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested. NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods. This report may not be used to claim product endorsement by NVLAP or any agency of the US Government. This report may not be reproduced except in full, without the written approval of the laboratory.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	206854
	Accept Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 4
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
				7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day ☆

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	4-FT-1	☑		floor tile		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	4-CT-1	☐		ceiling tile		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	4-DWJC-1	☐		drywall/joint compound		
8	↓ -2	☐		↓		
9	↓ -3	☐		↓		
10	4-CBM-1	☑		cove base mastic		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

☆ per J. Mitchell 7/11/16 ☆

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 205854
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Alkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	4-CBM-2	☐		cove base mastic		
2	↓ -3	☐		↓		
3	4-FT2-1	☐		floor tile		
4	↓ -2	☐		↓		
5	↓ -3	☐		↓		
6	4-WM-1	☐		wall mastic		
7	↓ -2	☐		↓		
8	↓ -3	☐		↓		
9		☐				
0		☐				
1		☐				
2		☐				
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
8		☐				
9		☐				
0		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265855
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 6
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	6-WG-1	Homogeneous	White Window Glazing	Asbestos Not Present	NA	CaCO3
002	6-WG-2	Homogeneous	White Window Glazing	Asbestos Not Present	NA	CaCO3
003	6-WG-3	Homogeneous	White Window Glazing	Asbestos Not Present	NA	CaCO3
004	6-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
005	6-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
006	6-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint

Carter Cox

Carter W. Cox, Analyst

7/8/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	265855
	Accept / Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 16
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
				7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☐	5 - Day

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	6-WG-1	☑		window glaze		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	6-CT-1	☐		ceiling tile		
5	↓ -2	☐		↓		
6	↓ -3	☑		↓		
7		☐				
8		☐				
9		☐				
10		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
001	8-TSI-1	Homogeneous	White Insulation	Asbestos Not Present	Glass Fiber	60	Gypsum CaCO3
002	8-TSI-2	Homogeneous	White Insulation	Asbestos Not Present	Glass Fiber	60	Gypsum CaCO3
003	8-TSI-3	Homogeneous	White Insulation	Asbestos Not Present	Glass Fiber	60	Gypsum CaCO3
004	8-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
005	8-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
006	8-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
007	8-CBM-1	Layered	Dark Brown Cove Base	Asbestos Not Present	NA		Vinyl CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
007a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
008	8-CBM-2	Layered	Dark Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
008a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
009	8-CBM-3	Layered	Dark Brown Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
009a		Layered	Brown Cove Base Mastic	Asbestos Not Present	NA	Glue
010	8-WG-1	Homogeneous	White Window Glazing	Asbestos Not Present	Talc 2	CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
011	8-WG-2	Homogeneous	White Window Glazing	Asbestos Not Present	Talc	2	CaCO3
012	8-WG-3	Homogeneous	White Window Glazing	Asbestos Not Present	Talc	2	CaCO3
013	8-CT2-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
014	8-CT2-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
015	8-CT2-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	30 30	Perlite Paint
016	8-DWJC-1	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose	20	Gypsum
017	8-DWJC-2	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose	20	Gypsum Paint

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
018	8-DWJC-3	Layered	White Texture	Asbestos Not Present	NA	CaCO3 Paint
018a		Layered	White Sheetrock	Asbestos Not Present	Cellulose 20	Gypsum
019	8-FT-1	Layered	Black Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
019a		Layered	Black Mastic	Asbestos Not Present	NA	Tar
020	8-FT-2	Layered	Black Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
020a		Layered	Black Mastic	Asbestos Not Present	NA	Tar

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
021	8-FT-3	Layered	Black Floor Tile	Asbestos Not Present	NA	Vinyl CaCO3
021a		Layered	Black Mastic	Asbestos Not Present	NA	Tar
022	8-CTX-1	Homogeneous	White Ceiling Texture	Asbestos Not Present	NA	CaCO3 Paint
023	8-CTX-2	Homogeneous	White Ceiling Texture	Asbestos Not Present	NA	CaCO3 Paint
024	8-CTX-3	Homogeneous	White Ceiling Texture	Asbestos Not Present	NA	CaCO3 Paint
025	8-CBM2-1	Layered	Black Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
025a		Layered	Yellow Cove Base Mastic	Asbestos Not Present	NA	Glue

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
025b		Layered	White Texture	Asbestos Not Present	NA	CaCO3 Paint
026	8-CBM2-2	Layered	Black Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
026a		Layered	Yellow Cove Base Mastic	Asbestos Not Present	NA	Glue
026b		Layered	White Texture	Asbestos Not Present	NA	CaCO3 Paint
027	8-CBM2-3	Layered	Black Cove Base	Asbestos Not Present	NA	Vinyl CaCO3
027a		Layered	Yellow Cove Base Mastic	Asbestos Not Present	NA	Glue

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265851
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Cristal Veech
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
027b		Layered	White Texture	Asbestos Not Present	NA	CaCO3 Paint
028	8-VER-1	Layered	Gold Insulation	Asbestos Present Actinolite/Tremolite <1	NA	Vermiculite
028a		Layered	Gray Plaster	Asbestos Not Present	NA	Sand CaCO3
029	8-VER-2	Homogeneous	Gold Insulation	Asbestos Not Present	NA	Vermiculite
030	8-VER-3	Homogeneous	Gold Insulation	Asbestos Present Chrysotile <1	NA	Vermiculite

Cristal Veech

Cristal Veech, Analyst

7/8/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	210586
	Accept (circled) Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY:	Name: Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 8
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
			PA	7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day ★

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	8-TSI-1	☐		insulation		
2	↓ -2	☐		↓		
3	↓ -3	☐				
4	8-CT-1	☐		ceiling tile		
5	↓ -2	☐		↓		
6	↓ -3	☐				
7	8-CBM-1	☐		cove base mastic		
8	↓ -2	☐		↓		
9	↓ -3	☐				
10	8-WG-1	☐		window glaze		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

★ per J. Mitchell 7/11/16 PA

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 1605851
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	8-WG-2	☑		window glaze		
12	↓ -3	☐		↓		
13	8-CT2-1	☐		ceiling tile		
14	↓ -2	☐		↓		
15	↓ -3	☐		↓		
16	8-DWJC-1	☐		drywall/joint compound		
17	↓ -2	☐		↓		
18	↓ -3	☐		↓		
19	8-FT-1	☐		floor tile		
20	↓ -2	☐		↓		
21	↓ -3	☐		↓		
22	8-CTX-1	☐		ceiling texture		
23	↓ -2	☐		↓		
24	↓ -3	☐		↓		
25	8-CBM2-1	☐		cove base mastic		
26	↓ -2	☐		↓		
27	↓ -3	☐		↓		
28	8-VER-1	☐		vermiculite		
29	↓ -2	☐		↓		
30	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265856
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 9
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	9-CT-1	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
002	9-CT-2	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
003	9-CT-3	Homogeneous	White Ceiling Tile	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Perlite Paint
004	9-DW-1	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose 5	Gypsum
005	9-DW-2	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose 5	Gypsum
006	9-DW-3	Homogeneous	White Sheetrock	Asbestos Not Present	Cellulose 5	Gypsum
007	9-TR-1	Homogeneous	Gray Transite	Asbestos Present Chrysotile 20	NA	CaCO3

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 265856
Account Number: B229
Date Received: 07/01/2016
Received By: Peyton Awbrey
Date Analyzed: 07/08/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 9
Project Location: Keokuk, IA
Project Number: N/A

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
008	9-TR-2	Homogeneous	Gray Transite	Asbestos Present Chrysotile 20	NA	CaCO3
009	9-TR-3	Homogeneous	Gray Transite	Asbestos Present Chrysotile 20	NA	CaCO3

Carter Cox

Carter W. Cox, Analyst

7/8/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QUANTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	2058856
	Accept Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 9
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
			[signature]	7/1/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day

Jeff requested all 7 bags are 5 day T.A. CV 7/1/30 10:34am

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	9-CT-1	☑		ceiling tile		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	9-DW-1	☐		drywall		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	9-TR-1	☐		transite panel		
8	↓ -2	☐		↓		
9	↓ -3	☑		↓		
10		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 267547
Account Number: B229
Date Received: 07/29/2016
Received By: Rachel Brooks
Date Analyzed: 08/05/2016
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 1
Project Location: Keokuk, IA
Project Number: PTCT for 265857

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	1-FT7-1	Homogeneous	Black Mastic	Asbestos Present Chrysotile 0.50 400 Point Count	NA	
002	1-FT7-2	Homogeneous	Black Mastic	Asbestos Present Chrysotile 0.25 400 Point Count	NA	
003	1-FT7-3	Homogeneous	Black Mastic	Asbestos Present Chrysotile 0.50 400 Point Count	NA	

Dee Ammerman, Analyst

8/5/2016
Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	206857
	(Accept) Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY:	Name: Jeff Mitchell	Date:	6/28/16

Project Information	
Project Name:	Elkem Carbide Bldg 1
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
			[signature]	7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM		PLM		TEM		TEM		TURNAROUND TIME	
☑	Bulk Analysis (EPA 600/R-93/116)	☐	Vermiculite Attic Insulation (EPA 600/R-04/004)	☐	Air- AHERA	☐	Bulk- Presence / Absence EPA600/R-93/116	☐	Rush
☐	400 Point Count	☐	Other	☐	Air- NIOSH 7402	☐	Bulk- Quantitative [weight%]- Chatfield	☐	Same Day
☐	1000 Point Count	PCM		☐	Air- ISO 10312	☐	Dust- Presence / Absence	☐	24 - Hour
☐	Gravimetric Preparation	☐	NIOSH 7400	☐	Drinking Water- EPA 100.2	☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755	☐	3 - Day
☐	Particle ID			☐	Waste Water- EPA 600/4-83-043	☐	Other	☑	5 - Day *

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	1-CBM-1	☑		cove base mastic		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	1-FT-1	☐		floor tile		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	1-CT-1	☐		ceiling tile		
8	↓ -2	☐		↓		
9	↓ -3	☐		↓		
10	1-ST-1	☑		stair tread		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

* per J. Mitchell 7/11/16

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 205857
(Accept) Reject

Project Information

Company: Tetra Tech | Project Name: Gilliam Cardicle | Project Location: Kotzebue, AK

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	1-ST-2	☑		stair tread		
12	↓ -3	☐		↓		
13	1-CT2-1	☐		ceiling tile		
14	↓ -2	☐		↓		
15	↓ -3	☐		↓		
16	1-FT2-1	☐		floor tile		
17	↓ -2	☐		↓		
18	↓ -3	☐		↓		
19	1-CBM2-1	☐		cove base mastic		
20	↓ -2	☐		↓		
21	↓ -3	☐		↓		
22	1-DWJC-1	☐		drywall / joint compound		
23	↓ -2	☐		↓		
24	↓ -3	☐		↓		
25	1-PLSC-1	☐		polyester / skim coat		
26	↓ -2	☐		↓		
27	↓ -3	☐		↓		
28	1-GP-1	☐		glue puck		
29	↓ -2	☐		↓		
30	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are **NOT** available for Saturday Delivery

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 208857
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
31	1-FT3-1	☑		floor tile		
32	↓ -2	☐		↓		
33	↓ -3	☐		↓		
34	1-FT4-1	☐		↓		
35	↓ -2	☐		↓		
36	↓ -3	☐		↓		
37	1-CA-1	☐		carpet adhesive		
38	↓ -2	☐		↓		
39	↓ -3	☐		↓		
40	1-ST2-1	☐		stair tread		
41	↓ -2	☐		↓		
42	↓ -3	☐		↓		
43	1-FT5-1	☐		floor tile		
44	1-FT6-1	☐		↓		
45	1-CT3-1	☐		ceiling tile		
46	↓ -2	☐		↓		
47	↓ -3	☐		↓		
48	1-CBM3-1	☐		cove base mastic		
49	↓ -2	☐		↓		
50	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 110857
(Accept) Reject

Project Information

Company: Tetra Tech | Project Name: Silicon Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
51	1-CT4-1	☑		ceiling tile		
52	↓ -2	☐		↓		
53	↓ -3	☐		↓		
54	1-PW-1	☐		wall panel		
55	↓ -2	☐		↓		
56	↓ -3	☐		↓		
57	1-WC-1	☐		caulk		
58	↓ -2	☐		↓		
59	↓ -3	☐		↓		
60	1-FT7-1	☐		floor tile		
61	↓ -2	☐		↓		
62	↓ -3	☐		↓		
63	1-FP-1	☐		floor paper		
64	↓ -2	☐		↓		
65	↓ -3	☐		↓		
66	1-CBM4-1	☐		cove base mastic		
67	1-FT8-1	☐		floor tile		
68	↓ -2	☐		↓		
69	↓ -3	☑		↓		
70		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are NOT available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 267549
Account Number: B229
Date Received: 07/29/2016
Received By: Rachel Brooks
Date Analyzed: 08/05/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 4
Project Location: Keokuk, IA
Project Number: PTCT for 265854

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	4-DWJC-1	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile <0.25 400 Point Count	NA	
002	4-DWJC-2	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile <0.25 400 Point Count	NA	
003	4-DWJC-3	Composite	White Joint Compound / Sheetrock	Asbestos Present Chrysotile 0.25 400 Point Count	NA	

Carter Cox

Carter W. Cox, Analyst

8/5/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	205854
	(Accept) Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
SAMPLED BY: Name:	Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 4
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
				7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM		PLM		TEM		TEM		TURNAROUND TIME	
☑	Bulk Analysis (EPA 600/R-93/116)	☐	Vermiculite Attic Insulation (EPA 600/R-04/004)	☐	Air- AHERA	☐	Bulk- Presence / Absence EPA600/R-93/116	☐	Rush
☐	400 Point Count	☐	Other	☐	Air- NIOSH 7402	☐	Bulk- Quantitative [weight%]- Chatfield	☐	Same Day
☐	1000 Point Count	PCM		☐	Air- ISO 10312	☐	Dust- Presence / Absence	☐	24 - Hour
☐	Gravimetric Preparation	☐	NIOSH 7400	☐	Drinking Water- EPA 100.2	☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755	☐	3 - Day
☐	Particle ID			☐	Waste Water- EPA 600/4-83-043	☐	Other	☒	5 - Day ☆

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	4-FT-1	☑		floor tile		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	4-CT-1	☐		ceiling tile		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	4-DWJC-1	☐		drywall joint compound		
8	↓ -2	☐		↓		
9	↓ -3	☐		↓		
10	4-CBM-1	☑		cove base mastic		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "**Hold for Saturday Pickup**"
Please Note - UPS and USPS are NOT available for Saturday Delivery

☆ per J. Mitchell 7/11/16 ☆

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 2058854
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Alum Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	4-CBM-2	☐		cove base mastic		
2	↓ -3	☐		↓		
3	4-FT2-1	☐		floor tile		
4	↓ -2	☐		↓		
5	↓ -3	☐		↓		
6	4-WM-1	☐		wall mastic		
7	↓ -2	☐		↓		
8	↓ -3	☐		↓		
9		☐				
0		☐				
1		☐				
2		☐				
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
8		☐				
9		☐				
0		☐				

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are **NOT** available for Saturday Delivery

2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 267548
Account Number: B229
Date Received: 07/29/2016
Received By: Rachel Brooks
Date Analyzed: 08/05/2016
Analyzed By: Carter Cox
Methodology: EPA/600/R-93/116

Client: Tetra Tech EM, Inc
Jeff Mitchell
415 Oak Street
Kansas City, MO 64106

Project: Elkern Carbide Bldg 8
Project Location: Keokuk, IA
Project Number: PTCT for 265851

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	8-VER-1	Homogeneous	Gold Insulation	Asbestos Present Actinolite/Tremolite 0.50 400 Point Count	NA	
002	8-VER-3	Homogeneous	Gold Insulation	Asbestos Present Actinolite/Tremolite 0.75 400 Point Count	NA	

Carter Cox

Carter W. Cox, Analyst

8/5/2016

Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

ASBESTOS CHAIN OF CUSTODY

QuanTEM LABORATORIES
www.QuanTEM.com
2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only	
Lab No.	210585-1
	Accept Reject

Contact Information			
Company:	Tetra Tech	Phone:	(816) 412-1773
Contact:	Jeff Mitchell	Cell Phone:	
Account #:		E-mail:	jeffrey.mitchell@tetratech.com
Sampled By:	Name: Kaitlyn Bahr	Date:	6/27/16

Project Information	
Project Name:	Elkem Carbide Bldg 8
Project Location:	Keokuk, IA
Project ID:	
P.O. Number:	X9025.14.0002.019.017

Report Results (☑ one box)	
☑	QuanTEM Website
☑	Email jeffrey.mitchell@tetratech.com
☐	Other _____

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
			PA	7/11/16 10:00

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM	
☑	Bulk Analysis (EPA 600/R-93/116)
☐	400 Point Count
☐	1000 Point Count
☐	Gravimetric Preparation
☐	Particle ID

PLM	
☐	Vermiculite Attic Insulation (EPA 600/R-04/004)
☐	Other

PCM	
☐	NIOSH 7400

TEM	
☐	Air- AHERA
☐	Air- NIOSH 7402
☐	Air- ISO 10312
☐	Drinking Water- EPA 100.2
☐	Waste Water- EPA 600/4-83-043

TEM	
☐	Bulk- Presence / Absence EPA600/R-93/116
☐	Bulk- Quantitative [weight%]- Chatfield
☐	Dust- Presence / Absence
☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755
☐	Other

TURNAROUND TIME	
☐	Rush
☐	Same Day
☐	24 - Hour
☐	3 - Day
☒	5 - Day ★

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	8-TSI-1	☐		insulation		
2	↓ -2	☐		↓		
3	↓ -3	☐		↓		
4	8-CT-1	☐		ceiling tile		
5	↓ -2	☐		↓		
6	↓ -3	☐		↓		
7	8-CBM-1	☐		cove base mastic		
8	↓ -2	☐		↓		
9	↓ -3	☐		↓		
10	8-WG-1	☐		window glaze		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are **NOT** available for Saturday Delivery

★ per J. Mitchell 7/11/16 PA

QUANTEM LABORATORIES
www.QuanTEM.com

ASBESTOS CHAIN OF CUSTODY

2033 Heritage Park Drive, Oklahoma City, OK 73120-7502
(800) 822-1650 • (405) 755-7272 • Fax: (405) 755-2058

LEGAL DOCUMENT - PLEASE PRINT LEGIBLY

For Lab Use Only
Lab No. 1105851
Accept Reject

Project Information

Company: Tetra Tech | Project Name: Elkem Carbide | Project Location: Keokuk, IA

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	S-WG-2	☑		wardrobe glaze		
12	↓ -3	☐		↓		
13	S-CT2-1	☐		ceiling tile		
14	↓ -2	☐		↓		
15	↓ -3	☐		↓		
16	S-DWJC-1	☐		drywall/joint compound		
17	↓ -2	☐		↓		
18	↓ -3	☐		↓		
19	S-FT-1	☐		floor tile		
20	↓ -2	☐		↓		
21	↓ -3	☐		↓		
22	S-CTX-1	☐		ceiling texture		
23	↓ -2	☐		↓		
24	↓ -3	☐		↓		
25	S-CBM2-1	☐		cove base mastic		
26	↓ -2	☐		↓		
27	↓ -3	☐		↓		
28	S-VER-1	☐		vermiculite		
29	↓ -2	☐		↓		
30	↓ -3	☑		↓		

SATURDAY FEDEX SAMPLE DELIVERY - CALL TO SCHEDULE • Use this address for Saturday Delivery only: 4220 N. Santa Fe Ave., Oklahoma City, OK 73105-8517 • Mark Package "Hold for Saturday Pickup"
Please Note - UPS and USPS are **NOT** available for Saturday Delivery

APPENDIX 4 – Davis Bacon Prevailing Wage Term and Condition

"General Decision Number: IA20260028 01/16/2026

State: Iowa

Construction Types: Heavy and Highway

Counties: Adair, Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clarke, Clay, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Delaware, Des Moines, Dickinson, Dubuque, Emmet, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Howard, Humboldt, Ida, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Kossuth, Lee, Linn, Louisa, Lucas, Lyon, Madison, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Monroe, Montgomery, Muscatine, O'Brien, Osceola, Page, Palo Alto, Plymouth, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Sac, Shelby, Sioux, Story, Tama, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne, Webster, Winnebago, Winneshiek, Woodbury, Worth and Wright Counties in Iowa.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/16/2026

SAIA2025-001 12/26/2024

	Rates	Fringes
BRICKLAYER (BRICKLAYER/STONE MASON)		
ZONE 1	$ 37.00	18.62
ZONE 2	$ 37.00	18.62
ZONE 3	$ 37.00	18.62
ZONE 4	$ 35.75	17.09
ZONE 5	$ 32.65	17.09
Carpenter & Piledrivermen		
ZONE 1	$ 34.27	17.08
ZONE 2	$ 32.80	17.23
ZONE 3	$ 32.68	17.48
ZONE 4	$ 32.45	14.80
ZONE 5**	$ 31.40	13.45
CONCRETE FINISHER		
ZONE 1	$ 31.85	15.08
ZONE 2	$ 31.85	15.08
ZONE 3	$ 31.85	15.08
ZONE 4	$ 30.00	10.70
ZONE 5	$ 28.95	10.70
ELECTRICIAN (STREET AND HIGHWAY LIGHTING AND TRAFFIC SIGNALS)		
ZONE 1, 2, AND 3	$ 41.40	18.80
ZONE 4	$ 40.10	17.80
ZONE 5	$ 38.45	16.05
IRONWORKER (SETTING OF STRUCTURAL STEEL)		
ZONE 1	$ 32.28	19.07

ZONE 2	$ 30.57	19.46
ZONE 3	$ 30.56	19.60
ZONE 4	$ 28.74	18.51
ZONE 5**	$ 27.26	17.59

LABORER

ZONE 4		
GROUP A	$ 25.42	13.42
GROUP AA	$ 28.96	13.42
GROUP B	$ 23.57	13.42
GROUP C	$ 21.60	13.42
ZONE 5		
GROUP A	$ 25.42	12.17
GROUP AA	$ 28.96	12.17
GROUP B	$ 23.57	12.17
GROUP C	$ 21.60	12.17
ZONES 1, 2, & 3		
GROUP A	$ 26.29	13.64
GROUP AA	$ 28.96	13.64
GROUP B	$ 24.44	13.64
GROUP C	$ 21.36	13.64

POWER EQUIPMENT OPERATOR

ZONE 1		
GROUP A	$ 38.92	18.28
GROUP B	$ 37.37	18.28
GROUP C	$ 34.87	18.28
GROUP D	$ 34.87	18.28
ZONE 2		
GROUP A	$ 38.82	18.28
GROUP B	$ 37.22	18.28
GROUP C	$ 34.67	18.28
GROUP D	$ 34.67	18.28
ZONE 3		
GROUP A	$ 35.10	31.30
GROUP B	$ 33.80	31.30
GROUP C	$ 32.30	31.30
GROUP D	$ 32.30	31.30
ZONE 4		
GROUP A	$ 35.10	20.70
GROUP B	$ 33.96	20.70
GROUP C	$ 31.88	20.70
GROUP D	$ 31.88	20.70
ZONE 5		
GROUP A	$ 34.17	15.55
GROUP B	$ 33.13	15.55
GROUP C	$ 31.40	15.55
GROUP D	$ 30.40	15.55

TRUCK DRIVER

ZONE 1	$ 29.00	13.40
ZONE 2	$ 29.00	13.40
ZONE 3	$ 29.00	13.40
ZONE 4	$ 29.00	11.00
ZONE 5	$ 27.24	11.00

ZONE DEFINITIONS

ZONE 1 The Counties of Polk, Warren, and Dallas for all Crafts, and Linn County Carpenters only.

ZONE 2 The Counties of Dubuque for all Crafts and Linn County for all Crafts except Carpenters.

ZONE 3 The Cities of Burlington (including West Burlington), Clinton, Fort Madison, Keokuk, and Middleton (including the Iowa Army Ammunition Plant) and Muscatine (and abutting municipalities of any such cities).

ZONE 4 Story, Black Hawk, Cedar, Jasper, Jones, Jackson, Louisa, Madison, and Marion Counties; Clinton County (except the City of Clinton), Johnson County, Muscatine County (except the City of Muscatine), the City of Council Bluffs, Lee County and Des Moines County.
ZONE 5 All areas of the state not listed above.

LABORER CLASSIFICATIONS - ALL ZONES
GROUP AA - Skilled pipelayer (sewer, water, and conduits) and tunnel laborers; asbestos abatement worker

GROUP A - Carpenter tender on bridges and box culverts; CCTV* sewer inspection operator; curb machine (without a seat); deck hand; diamond & core drills; drill operator on air tracs, wagon drills, and similar drills; form setter/stringman on paving work; gunnite nozzleman; joint sealer kettleman; laser operator; mason tender (brick/stone), powderman tender; powderman/blaster; sign erector; saw operator; {(Zones 4 and 5) Skilled pipelayer (sewer, water, and conduits); surveyors assistant; tunnel laborer; asbestos abatement worker}. *new labor classification (CCTV: closed circuit television)

GROUP B - Air, gas, electric tool operator; barco hammer; carpenter tender; caulker; chain sawman; compressor (under 400 cfm); concrete finisher tender; concrete processing materials and monitors; cutting torch on demolition; drill tender; dumpmen; electric drills; fence erectors; form line expansion joint assembler; form tamper; general laborer; grade checker; handling and placing metal mesh, dowel bars, reinforcing bars and chairs; hot asphalt laborer; installing temporary traffic control devices; jack hammerman; mechanical grouter; painter (all except stripers); paving breaker; planting trees, shrubs and flowers; power broom (not self-propelled); power buggyman; rakers; rodman (tying reinforcing steel); sandblaster; seeding and mulching; sewer utility topman/bottom man; spaders; stressor or stretcherman on pre or post tensioned concrete; stringman on re/surfacing/no grade control; swinging stage, tagline, or block and tackle; tampers; timberman; tool room men and checkers; tree climber; tree groundman; underpinning and shoring caissons over twelve feet deep; vibrators; walk behind trencher; walk behind paint stripers; walk behind vibrating compactor; water pumps (under three inch); work from bosun chair.

GROUP C - Scale weigh person; traffic control/flagger, surveillance or monitor; water carrier.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS - ALL ZONES
GROUP A - All terrain (off road) forklift; asphalt breakdown roller (vibratory); asphalt laydown machine; asphalt plant; asphalt screed; bulldozer (finish); central mix plant; concrete pump; crane; crawler tractor pulling scraper; directional drill (60,000 (lbs) pullback and above); dragline and power shovel; dredge engineer; excavator (over cu. yd.); front end loader (4 cy and over); horizontal boring machine; master mechanic; milling machine (over 350 hp); motor grader (finish); push cat; rubber tired backhoe (over cu. yd.); scraper (12 cu. yd. and over or finish); Self-propelled rotary mixer/road reclaimer; sidebroom tractor; slipform portland concrete paver; tow or push boat; trenching machine (Cleveland 80 or similar)

GROUP B - Articulated off road hauler, asphalt heater/planer;

asphalt material transfer vehicle; asphalt roller; belt loader or similar loader; bulldozer (rough); churn or rotary drill; concrete curb machine; crawler tractor pulling ripper, disk or roller; deck hand/oiler; directional drill (less than 60,000 (lbs) pullback); distributor; excavator (1/2 cu. yd. and under); form riding concrete paver; front end loader (2 to less than 4 cu. yd.); group equipment greaser; mechanic; milling machine (350 hp. and less); paving breaker; portland concrete dry batch plant; rubber tired backhoe (1/2 cu. yd. and under); scraper (under 12 cu. yd.); screening, washing and crushing plant (mobile, portable or stationary); shoulder machine; skid loader (l cu. yd. and over); subgrader or trimmer; trenching machine; water wagon on compaction.

GROUP C - Boom & winch truck; concrete spreader/belt placer; deep wells for dewatering; farm type tractor (over 75 hp.) pulling disc or roller; forklift; front end loader (under 2 cu. yd.); motor grader (rough); pile hammer power unit; pump (greater than three inch diameter); pumps on well points; safety boat; self-propelled roller (other than asphalt); self-propelled sand blaster or shot blaster, water blaster or striping grinder/remover; skid loader (under 1 cu. yd.); truck mounted post driver.

GROUP D - Boiler; compressor; cure and texture machine; dow box; farm type or utility tractor (under 75 hp.) pulling disk, roller or other attachments; group greaser tender; light plants; mechanic tender; mechanical broom; mechanical heaters; oiler; pumps (under three inch diameter); tree chipping machine; truck crane driver/oiler.

** CARPENTERS AND PILEDRIVERMEN, or IRONWORKERS (ZONE 5)
Setting of structural steel; any welding incidental to bridge or culvert construction; setting concrete beams.

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

==========

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 https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been

renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 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 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 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) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be

directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

==========

END OF GENERAL DECISION"

APPENDIX 5 – Recorded Final Plat for Auditor's Parcel D Project Area

PLAT OF SURVEY - AUDITOR'S PARCEL "D"

Index Legend

Location: Part of Tract C, N1/2, NE1/4, Section 22-65-05

Requestor: City of Keokuk
Proprietor: City of Keokuk
Surveyor: Thomas Anthony, L.L.S. 8295
Surveyor Company: Shoemaker & Haaland, P.E.
Return To: 160 Holiday Road, Coralville, IA 52241
(319) 351-7150

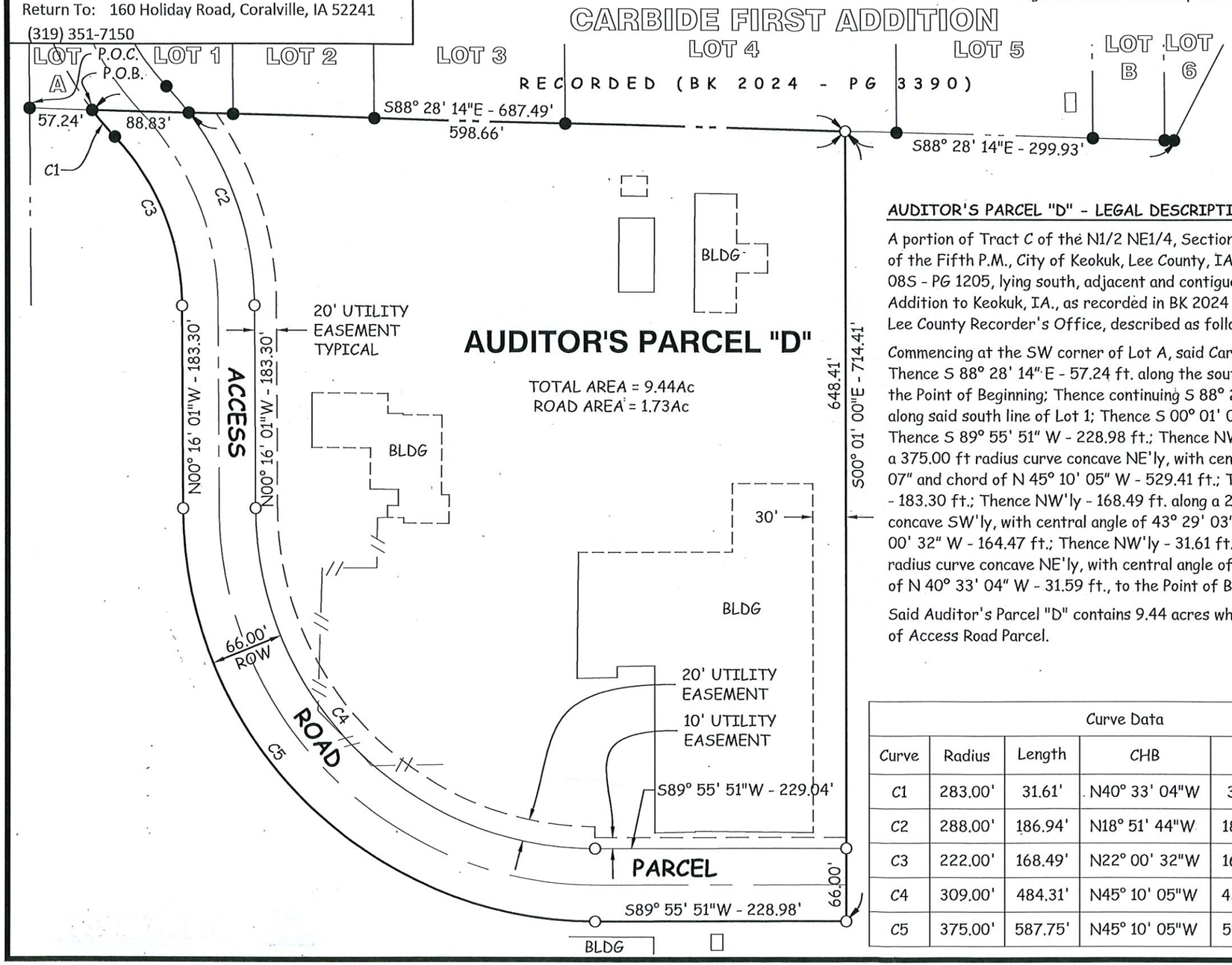
LICENSED LAND SURVEYOR
THOMAS J. ANTHONY
8295
IOWA

I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Land Surveyor under the laws of the State of Iowa.

Thomas Anthony Sept 18, 2024

Thomas J. Anthony Date
My license renewal date is December 31, 2024
Pages or sheets covered by this seal: Sheet 1 of 1

FOR RECORDER'S USE ONLY



AUDITOR'S PARCEL "D" - LEGAL DESCRIPTION

A portion of Tract C of the N1/2 NE1/4, Section 22, T.65N., R.05W., of the Fifth P.M., City of Keokuk, Lee County, IA., as recorded in BK 08S - PG 1205, lying south, adjacent and contiguous to Carbide First Addition to Keokuk, IA., as recorded in BK 2024 - PG 3390, all in the Lee County Recorder's Office, described as follows:

Commencing at the SW corner of Lot A, said Carbide First Addition; Thence S 88° 28' 14" E - 57.24 ft. along the south line of said Lot A, to the Point of Beginning; Thence continuing S 88° 28' 14" E - 687.49 ft. along said south line of Lot 1; Thence S 00° 01' 00" E - 714.71 ft.; Thence S 89° 55' 51" W - 228.98 ft.; Thence NW'ly - 587.75 ft. along a 375.00 ft radius curve concave NE'ly, with central angle of 89° 48' 07" and chord of N 45° 10' 05" W - 529.41 ft.; Thence N 00° 16' 01" W - 183.30 ft.; Thence NW'ly - 168.49 ft. along a 222.00 ft radius curve concave SW'ly, with central angle of 43° 29' 03" and chord of N 22° 00' 32" W - 164.47 ft.; Thence NW'ly - 31.61 ft. along a 283.00 ft radius curve concave NE'ly, with central angle of 6° 23' 59" and chord of N 40° 33' 04" W - 31.59 ft., to the Point of Beginning.

Said Auditor's Parcel "D" contains 9.44 acres which includes 1.73 acres of Access Road Parcel.

Curve Data					
Curve	Radius	Length	CHB	CH	DELTA
C1	283.00'	31.61'	N40° 33' 04"W	31.59'	6°23'59"
C2	288.00'	186.94'	N18° 51' 44"W	183.68'	37°11'26"
C3	222.00'	168.49'	N22° 00' 32"W	164.47'	43°29'03"
C4	309.00'	484.31'	N45° 10' 05"W	436.24'	89°48'07"
C5	375.00'	587.75'	N45° 10' 05"W	529.41'	89°48'07"

GRAPHIC SCALE
100' 0 50' 100'

N

LEGEND

- FND. PK NAIL
- FND. 5/8" REBAR UNLESS NOTED
- FND. PIPE
- FND. CUT X
- FND. CONC. MON.
- FND. R.O.W. RAIL
- SET 5/8" REBAR
- SET PK NAIL
- SET CUT X
- SET SEC COR
- COMPUTED SEC COR NOT FOUND OR SET
- COMPUTED ROW COR
- ( ) RECORDED DIMENSION OR BK. - PG.
- EX. PROPERTY LINE
- SECTION LINE
- UTILITY EASM. LINE
- CALC. BLDG LINE
- PLAT LINE

Shoemaker & Haaland
Consulting Engineers • Land Surveyors
160 Holiday Road
Coralville, Iowa 52241
Phone: 319.351.7150
www.shoemaker-haaland.com

AUDITOR'S PARCEL "D"

DWN.: CNP
CHK.: TJA
SCALE: 1" = 100'
FIELD BK.: 1150/10
SURVEY DATE(S): JULY 2023
PLAT DATE: 08/24/2023
REV. DATE: 09/18/2024

365 CARBIDE LANE, KEOKUK IA

SHPE JOB # 23215 | SHEET 1 OF 1