120063.01 GENERAL.

A. The Contractor shall have the responsibility to train and designate one person on staff. The HAZWOPER individual is required to be 40 hour HAZWOPER certified as determined by OSHA.

B. The Contractor's HAZWOPER certified individual shall conduct a safety meeting for all project workers who may be exposed the soil or ground water prior to construction.

C. The HAZWOPER certified individual is responsible for the overall management and determination of any contaminated soils that may be encountered.

D. A qualified observer shall be on-site through the excavation process to determine whether a changed condition has occurred and also be available to confer and consult with construction personnel on suggested precautions and safety issues.

E. The HAZWOPER certified individual will be required to perform all quality control work associated with monitoring and documenting any issues encountered.

F. The attached Soil and Groundwater Management Plan, prepared by IIW, P.C. will be used as a guide and educational document.

G. Provide the Engineer a copy of the certification for the HAZWOPER certified individual.

H. If a changed soil condition or ground water is encountered during the project, working days will be stopped and will resume when the appropriate safety measures have been identified to allow work to proceed.
120063.02 METHOD OF MEASUREMENT.

A. By count for the number of days the HAZWOPER certified individual is used.

B. For a HAZWOPER certified individual to be counted:

1. Use of the HAZWOPER certified individual is necessary. If used less than 4 hours during a shift, one-half day will be counted.

2. Use of the HAZWOPER certified individual is necessary and they are used for at least 1 hour during the shift, perhaps intermittently, and this shall be the primary duty of the employee. If used less than 4 hours in a shift, one-half day will be counted.

C. Unless otherwise approved, a maximum of one HAZWOPER certified individual can be counted per day.

120063.03 BASIS OF PAYMENT.
Contract unit price per day for each day a HAZWOPER certified individual is used. Payment is full compensation for providing a HAZWOPER certified individual according to Article 120063.01 of this special provision.
Contents
01. INTRODUCTION .................................................................................................................. 3
02. PURPOSE ............................................................................................................................ 3
03. SITE HISTORY .................................................................................................................. 4
  03.1 Site Assessment by IIW .................................................................................................. 4
04. HAZARD ASSESSMENT ...................................................................................................... 5
  04.1 Chemical Toxicity ........................................................................................................ 6
  04.2 Exposure ....................................................................................................................... 6
  04.3 Completing Exposure Pathways .................................................................................. 7
05. CONTAMINANT EXPOSURE PRECAUTIONS ................................................................ 7
06. ROUTINE CONTROL ........................................................................................................ 7
07. DUST CONTROL MEASURES ............................................................................................ 8
08. SURFACE GRADING .......................................................................................................... 8
09. UNDERGROUND EXCAVATION AND TRENCHING ...................................................... 8
  09.1 Waste Minimization .................................................................................................... 8
10. PERSONAL PROTECTION .................................................................................................. 9
  10.1 Skin Protection .......................................................................................................... 9
  10.2 Personal Hygiene ......................................................................................................... 9
11. DECONTAMINATION ......................................................................................................... 9
12. CHANGED CONDITIONS ................................................................................................... 10
  12.1 Isolate Suspect Soils .................................................................................................... 10
  12.2 Containerize Suspect Groundwater ............................................................................ 10
  12.3 Requirements of Workers with Potential of Exposure to Pentachlorophenol ............... 10
13. MEASUREMENT OF CHANGED CONDITIONS ................................................................. 11
14. DISPOSAL OF EXCESS SOILS ........................................................................................ 11
  14.1 On-Site Disposal ....................................................................................................... 11
  14.2 Off-Site Disposal ....................................................................................................... 11
Figure 1 ................................................................................................................................. 13
Figure 2 ................................................................................................................................. 14
APPENDIX A ....................................................................................................................... 15
APPENDIX B ........................................................................................................................ 16
I. INTRODUCTION

IIW, P.C. understands that the City of Dubuque (City) intends to reconstruct Elm Street from 9th Street to 11th Street and partial construction up to 12th Street. These sites are collectively referred to as the Project Area. An aerial photo of the project vicinity is included as Figure 1. Hazardous reference information is provided as Appendix A. Four site maps showing the location of soil and groundwater sampling points for the following four reports are provided as Appendix B:

1. Soil and Groundwater Management Plan Elm Street Reconstruction, dated April 25, 2013 (EX1)
2. Phase II Environmental Assessment Report, dated March 1, 2011 (EX 8)
3. Amended Phase II Environmental Assessment Report, dated November 30, 2011 (EX 3)

The results of previous environmental site assessment activities, conducted by others, have identified environmental impairment resulting from historical activities conducted in the Project Area and on adjoining properties. Proposed site activities include excavation, grading, paving, and utility installation, which may expose on-site workers to residual chemical impact. The City has requested IIW, P.C.’s assistance in the development of appropriate soil and groundwater management protocols and in providing an on-site briefing to workers involved in proposed site development activities.

The Soil and Groundwater Management Plan (Plan) is intended to inform workers of the conditions of environmental impairment. This Plan provides the following information specific to soil and groundwater conditions observed on this site:

a. General summary of conditions of chemical impairment, chemicals of concern and past assessment and evaluation,
b. Discussions of public health issues relative to chemicals of concern,
c. Hazard recognition procedures in working with soils and groundwater at the site,
d. Hazard response procedures, if needed, in working with soils and groundwater at the site,
e. Suggested procedures regarding dewatering, handling, storage, and disposal of groundwater at the site.

0.2 PURPOSE

Contractors performing dewatering, excavation, or other activities that disturb soils and groundwater at the site have the right to know that the soils they encounter are known to contain residual concentrations of arsenic, cadmium, chromium, lead, and polynuclear aromatic hydrocarbons (PAHs) in soil resulting from historical on-site industrial activities. Although the reported chemical impact in soil within the project limits does not exceed Statewide Standards, unknown conditions may exist that could potentially result in elevated risk to on-site workers.

Statewide Standards for soil and groundwater have been developed by the Iowa Department of Natural Resources (IDNR) to represent the concentration of a contaminant in the respective media at which normal exposure is considered unlikely to pose a threat to human health. The Statewide Standards for soil address direct exposure via ingestion or dermal contact and for groundwater, direct exposure via
ingestion.

Arsenic, lead, PAHs, tetrachloroethane (perchloroethylene or PCE), chloroform, methylene chloride, and pentachlorophenol (PCP) have been detected in groundwater adjacent to the site at concentrations in excess of IDNR Statewide Standards. It should be understood by site workers that the concentrations of the residual contaminants that may be encountered are generally of low concentration. Exposure and potential adverse health effects can be avoided if certain work precautions are practiced.

This Plan serves as an educational document for construction workers involved with soil and groundwater on this property. The plan is intended to discuss the importance of proper safety when encountering soil and groundwater that has been contaminated. The plan provides an awareness of the conditions of the property observed during environmental site assessment activities.

The Plan provides contractors involved in construction with information for use in executing employer obligations for employee-right-to-know and responsibilities for worker safety supplemental to other programs of regulation. It provides general guidelines for reducing potential exposures of occupants or workers to soils having chemical impact.

The Plan provides for a process of observation and recognition to identify if conditions during construction differ significantly from those observed during testing and sampling. The Plan provides a process for qualitatively and quantitatively identifying if the changed condition presents a potential hazard condition different from conditions evaluated.

The Plan is not intended for direct, unmodified use by employers to protect workers. Rather, it intends to provide general considerations and procedures for modification and incorporation by employers into their existing worker safety programs. Ultimately, each employer is responsible for the health and safety of its own workers.

This document discusses the previous use(s) of land in this area and describes the contaminants previously identified in site soil and groundwater. Anticipated maximum contaminant concentrations and potential health effects of these compounds are addressed, as are the steps that should be taken to reduce exposure to construction personnel.

The purpose of the information provided herein is to inform construction personnel of potential contaminants present at the site, and to identify work practices that should be used to reduce the potential for inhalation or ingestion of potential contaminants.

0.3 SITE HISTORY

Based on a review of a previous Phase 1 Environmental Site Assessment (ESA) report for the Alamo Block prepared by IIW Engineers & Surveyors, P.C. (IIW) and dated January 27, 2010, the property has been used primarily for metal fabrication, woodworking, millwork, warehousing, and railroad operations throughout its history. A portion of the property is now being used as an automobile body repair shop.

03.1 Site Assessment by IIW

Phase II site assessment activities for the project vicinity conducted between 2010 and 2013 by IIW identified the presence of arsenic, cadmium, chromium, lead, and PAHs in soil at concentrations that were less than IDNR Statewide Standards. Arsenic, lead, PAHs, PCE, chloroform, methylene chloride, and pentachlorophenol were also detected in groundwater at concentrations that exceed
IDNR Statewide Standards. The following Phase II Environmental Site Assessment Reports are available for review from IIW upon request:

1. Phase II Environmental Assessment Report, dated March 1, 2011

The most recent Phase II ESA conducted specifically for the 30-inch Sanitary Sewer Force Main Relocation project area/site was conducted in February 2013. The analytic results for soil sampling showed PAHs, RCRA Metals, Mercury and TEH all below the Statewide Standards for these constituents. Groundwater samples were taken a few weeks later. All PAHs, RCRA Metals, Mercury, TEH and Dioxins/Furans were below the Statewide Standards with the exception of pentachlorophenol (PCP) for MW2 which exhibited a concentration of 40 ug/l which is above the Statewide Standard of 29 ug/l for non-protected groundwater sources.

The IIW ESA report included information pertaining to a release of PCP from a 4,000-gallon underground storage tank (UST) and from a 15,000-gallon aboveground storage tank (AST) located at the former Eagle Window and Door (Eagle) facility at 375 East 9th Street. Although the listed street address for the Eagle facility is in the Project Area, review of the information indicates that the UST and AST were located on the portion of the Eagle property north of 11th Street. The locations of the AST and UST in relation to the Project Area are depicted on Figure 2.

0.4 HAZARD ASSESSMENT

The contaminant compounds listed above are the principal contaminants of concern previously identified during assessment activities at this project site. Soils at the site have been identified as containing concentrations of arsenic, cadmium, chromium, lead, PAHs, PCP, and dioxin. Disturbance of soils at this site could expose personnel to these compounds. The contaminants at the concentrations previously identified pose a minimal skin contact hazard. The primary exposure pathway is by accidental ingestion. Considering the maximum concentrations identified in site soils, the potential for exposures exceeding PELs is improbable. The use of good personal hygiene practices and gloves will reduce the potential for exposure by the ingestion pathway.

Groundwater at the site has been identified as containing concentrations of arsenic, lead, chloroform, methylene chloride, PCE, PAHs, and PCP. Excavation or dewatering activities could expose personnel to this compound. The contaminants at the concentrations previously identified pose a minimal skin contact hazard. The primary exposure pathway is by accidental ingestion.

A Permissible Exposure Limit or PEL, is defined by the Occupational Safety and Health Administration (OSHA) as the maximum average level of a substance in air to which most workers may be exposed 8-hours a day, 40-hours a week, without adverse health effect. The PELs are based on scientific studies of the health effects of chemicals in animals and humans. Eight hour exposures below the PEL are considered to pose negligible short and long-term health risks to most workers. However, prolonged exposure to contaminants at concentrations above the PEL may lead to harmful short or long-term health effects. PELs refer to breathable concentrations of chemical substances in air. The PELs do not apply to skin contact with, or to accidental swallowing of the compounds.

Past environmental assessment activities within and adjacent to the Project Area have identified arsenic, lead, chloroform, methylene chloride, and tetrachloroethylene (perchloroethylene or PCE), PAHs, and PCP in groundwater at reported concentrations in excess of IDNR Statewide Standards. The source of
PCP in groundwater has been identified as a former UST and a former AST located on an adjoining property. The plume of PCP in groundwater impacts portions of the Project Area. The maximum reported concentrations of contaminants in groundwater identified were pentachlorophenol (40 ug/l).

04.1 Chemical Toxicity

When the amount of chemical concentration (organic or inorganic) helps (as in the case of medicine) or does not harm the body, a condition of acceptable chemical risk exists. When a chemical exceeds the amount where it can begin to do harm immediately or over a long period, a condition of unacceptable risk is felt to exist. It is at this point of unacceptable risk where a chemical becomes harmful or toxic. A chemical becomes toxic when the amount of material which enters the body begins to produce harm. If the harm is realized in a relatively short period (minutes, days or weeks), the material is said to have an acute toxicity. If harm is realized over a relatively long period (years, decades or a person's lifetime), the material has a chronic toxicity.

For example, a chemical used as a pain killer in medicine, in proper doses and short periods of exposure, has a beneficial medicinal effect. Used improperly in small doses over time (addiction), has a negative chronic effect. Used improperly in large doses (overdose), has a negative acute effect.

The IDNR does not make its own studies to determine a chemical's toxicity. The IDNR relies on the same chemistry and toxicity studies conducted by the United States Environmental Protection Agency (USEPA) used to set national levels of protection for our air and drinking water. These were used to calculate the statewide remediation objectives used to evaluate the site.

The Iowa programs must determine a level of target risk that is acceptable. For chemicals in Iowa the target risk for a chemical is to produce cancer effects as less than five additional cancer occurrences in one million, or 5-in-1,000,000. In comparison, workplace standards to protect workers from chemical exposure are often calculated using 1-in-10,000 risk levels. For chemicals which might produce other non-cancer health effects, the level is calculated to be protective of no ill effect over an average person's lifetime.

04.2 Exposure

Exposure is the manner in which a chemical encounters a body. Exposure consists of three basic parts:

a) The physical material, or media, that carries the chemical to the body. For the site, this was determined to be soils with chemical impact above objectives.

b) The period of time, or duration, that the body occupies the site impacted by the chemical. Under IDNR programs, this assumes 30 years residential occupancy at a site, 25 years for commercial occupancy, and 1 year for construction worker occupancy.

c) The number of times, or frequency, that the contact and chemical delivery might occur during occupancy. Under IDNR programs, exposure frequency is assumed to occur 350 days per year for residential occupants, 250 days per year for commercial occupants, and 30 days per year for construction workers. A day is considered 24 hours.

In comparing to the objectives, it was assumed that the person is theoretically exposed to the maximum amount of chemical measured at the site. Chemical measurements at the site were typically less than the maximum used for comparison.
04.3 Completing Exposure Pathways

An exposure pathway is the physical manner in which the chemical moves from its source to enter the body to do harm. An exposure pathway for this site is complete if the soil or groundwater with chemical impact is actually available to a person or if there is a likelihood in the future that this condition could occur. Basic considerations in determining pathway completions for the site were:

a) Soils at any depth with chemical impact could be available for exposure to construction workers or maintenance workers disturbing soils in the course of construction or repairs, although individual exposures will likely be less than the 30 days per year, 24 hours per day assumed for the pathway.

b) Groundwater with chemical impact could be available for exposure to construction workers or maintenance workers conducting excavation or dewatering activities in the course of construction or repairs, although individual exposures will likely be less than the 30 days per year, 24 hours per day assumed for the pathway.

The analysis presented in this Plan is based upon data obtained from environmental site assessment activities by others and from other information discussed in this document. This Plan does not consider any variations in subsurface stratigraphy that may occur between sample locations or across the site. Actual subsurface conditions may vary. The extent of such variations may not become evident without additional exploration.

0.5 CONTAMINANT EXPOSURE PRECAUTIONS

This Plan recognizes that construction will disturb soils at the site and that unplanned or yet unknown activities might expose workers to the chemicals identified in soils. The former and present site investigations were comprehensive; however no testing and analysis program can test everywhere. Unknown conditions could occur between testing locations. The Plan must provide workers with precautionary measures to recognize and address potential new discoveries on the site.

Based on the level of contaminants for this site and the nature of the construction activities it is required that one employee of the Contractor be HAZWOPER (Hazardous Waste Operations and Emergency Response) certified. The HAZWOPER certified employee will be required to conduct an initial safety briefing of all employees prior to construction and will be required to be available to be on-site in the event of the discovery of a changed condition.

0.6 ROUTINE CONTROL

Incidental disturbance of soils should be avoided. Earthwork and other necessary construction should be planned to minimize disturbance of soils from original locations and original elevations. Soils disturbed in construction should be restored whenever possible to original elevations. The worker or contractor must have a physical method of measuring and monitoring horizontal and vertical control when disturbing soils on the site to maintain the current conditions.

During routine operations involving soils in the project area, the worker should use normal construction safety apparel of their respective contractor's safety program, augmented with gloves and rubberized safety footwear or safety footwear with disposable latex covers to reduce soil contact. For purposes of this plan, this is referred to as Level 1 Safety.
For work beyond routine operations, a site health and safety plan should be developed. The contractor may contact an environmental engineer for assistance if their firm does not have the necessary resources training to complete a site-specific health and safety plan under 29 CFR 1910.

0.7 DUST CONTROL MEASURES

Dust control measures should be employed during excavation activities at the site to achieve no visible emissions. Personnel operating mobile equipment at this site are instructed to drive slowly to reduce dust generation. Low tipping of excavated loads, and if surface materials are dry, covering of stockpiles, should be used to limit the generation of visible airborne dusts. Use of a water spray unit to dampen surface materials should be considered if visible dusts are generated during excavation and soil movement. Construction personnel should avoid over-spraying the area to prevent run-off and mud-slick work surfaces. Spraying soils to reduce the amount of dust should be performed in a manner to prevent excessive soil moisture which, in turn, could cause water run-off in the areas of soil containment.

0.8 SURFACE GRADING

When working at existing grades, workers should minimize the movement of surface soils from their original location to other areas of the site. Contractors should plan their work to account for minimal soil movement and to adapt types and application of grading equipment to this end.

Surface disturbances such as rutting should be repaired immediately by localized leveling. Contractors involved in grading should minimize leveling of the surface through "back-dragging" by earthmoving equipment until imported fills have been placed. The Plan recognizes that absolute restoration of materials to original locations is difficult. However, workers should attempt to restore soils to original conditions as is practical.

0.9 UNDERGROUND EXCAVATION AND TRENCHING

The vertical stability in excavation and trenching of soils is very important. The Plan recognizes the construction of utilities or other structures will disturb the vertical positions of soil/fills. The general rule will be to remove and stockpile soils so that a "last out, first in" process occurs. For example, during excavation soils in the upper three feet should be stockpiled to one side and are the first materials removed. These soils should be the last returned to the excavation during backfill. Similarly soils removed from below three feet should be replaced first.

Concerns and methods for environmental handling of soils do not preclude nor modify any of the OSHA requirements for worker safety incumbent upon contractors for regular site safety and trenching/excavation activities. OSHA requirements will dictate adjustment of the soil management method where necessary.

Installation of utilities or structures may displace soil volume in these zones, resulting in excess soils as excavation spoils. Excess spoils from excavations not needed on the site will require special handling and disposal. See discussion later on Disposition of Excess Soils

0.9.1 Waste Minimization

To the extent practical, measures should be taken to minimize the volume of excess soils, to limit the need for dewatering activities, and to prevent exposure between storm water and impacted
soils. Construction activities requiring subsurface excavation should be completed and backfilled promptly to minimize exposure. The size or length of excavations should be controlled to allow for proper completion of immediately pending activities, but should not be left open for extended periods with little or no activity.

Excavation areas should be protected from storm water run-on by constructing soil berms or other diversionary structures on the upgradient side of the area to direct water away from exposed soils and into proper storm water conveyance structures. If necessary, storm water detention areas can be constructed to allow for collection and transfer by pumping or other means around excavation areas.

10.0 PERSONAL PROTECTION

10.1 Skin Protection

It is recommended that construction personnel begin project activity in the following work attire when working in direct contact with soils:

- Standard work uniform
- Rubberized safety footwear or safety footwear with disposable latex covers
- Hard hat
- Cotton lined impermeable gloves of nitrile rubber or PVC

In order to minimize the potential for carrying contaminated soils off-site that could later be accidentally ingested by site workers or family members, especially children, it is suggested that clothing soiled on site be changed at the project site or removed and laundered as soon as possible following each work day. Do not wear garments soiled on site until they have been laundered. It is recommended that soiled clothing be laundered separately from other articles of clothing.

10.2 Personal Hygiene

Site personnel are advised to use good personal hygiene practices during activities that disturb soils at this project site. It is recommended that work gloves as outlined above be worn and that hands, face and forearms be washed with soap and water prior to eating, drinking, smoking, or using the restroom facilities. Personnel should avoid chewing gum and tobacco, and refrain from any other behavior that could increase the possibility of hand-to-mouth of potentially contaminated soils.

11.0 DECONTAMINATION

Contractors should use brushes, shovels etc. to conduct gross soil removal on equipment used to excavate or move soils at this project site. Considering the low levels of potential site contaminants, decontamination with high-pressure wash is not considered mandatory, however, it may be considered by contractors performing work at the site.

Personnel decontamination should consist of thorough washing of hands, forearms and face before eating, drinking, or smoking. Gross soils should be removed from footwear before leaving the project site. As indicated above, wash hands, face, and forearms with soap and water after removing gloves. It is recommended that a full-body shower be taken as soon as possible upon completion of the work shift. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of potentially contaminated soils must be avoided in the work area.
12.0 CHANGED CONDITIONS

If chemical odors, stained or saturated soils, a sheen on water in excavations, or other evidence of potential chemical contamination is encountered during excavation activities at this project site, it is recommended that a qualified individual on-site determine the presence of volatile organic compounds a direct reading air monitoring instrument such as a photoionization detector, flame ionization detector, or other instrument capable of detecting the suspected contaminants. Air monitoring in the breathing zone of site workers may be conducted to determine the potential for exposure to volatile organic compounds. In all cases where a detectable odor is observed construction personnel and others should evacuated the excavation until ventilation of the excavation can be accomplished. This can be done through positive pressure fans or other similar type of equipment. Personnel should be advised to use impermeable gloves of nitrile rubber and nitrile rubberized outer footwear. If clothing contact cannot be avoided, personnel should use outer coveralls such as polycorated Tyvek® or rain gear to prevent clothing contact with contaminated soils. If screening of the atmosphere in the breathing zone of the site workers demonstrates sustained airborne concentration of volatile organic compounds above 10 parts per million (ppm), it is recommended that samples of the contaminants be collected and analyzed, and that a modification of this plan be developed to include air monitoring "action levels" and provisions for possible upgrade to respiratory protection. It is recommended that a qualified observer (employed by the Contractor) be on-site through the excavation process to determine whether a changed condition has occurred and also to be available to confer and consult with construction personnel on suggested precautions and safety issues.

12.1 Isolate Suspect Soils

Contractors should upgrade normal construction safety attire with rubber gloves, and in the case of odors, provide sufficient open air ventilation consistent with his employer's safety plan. The suspect soils should be isolated as soon as possible from contact and disturbance by rain and wind until evaluation of the materials can be completed. Suspect soils should be placed on and covered with plastic sheeting. The plastic sheeting should be weighted down with planks or sandbags. Do not remove the soils from the excavated area unless they are placed in a container with total enclosure, such as a waste dumpster. Until the spoils are covered, construction flagging tape attached to stakes can be used to prevent accidental movement of the soils by earthwork operations. Silt fence shall be placed along the periphery of the soil isolation area to control sediment run-off onto adjoining property. The soil containment area shall be graded so that surface water run-off is directed to single point of discharge on the property. An impermeable sump or catchment shall be constructed to capture surface run-off. The collected run-off may then be transported to a nearby sanitary sewer for discharge, provided that the discovered contaminants are of a concentration that the City of Dubuque would be able to accept into their wastewater treatment facilities.

12.2 Containerize Suspect Groundwater

The suspect groundwater should be collected and containerized in drums, totes, or tanks until evaluation of the materials can be completed. A subcontractor experienced in these activities is recommended.

12.3 Requirements of Workers with Potential of Exposure to Pentachlorophenol

For workers potentially exposed to Pentachlorophenol at this site, the use of personal protective equipment to prevent skin contact will also be required. Specifically, PPE requirements would include suits, gloves, footwear, headgear, and safety glasses with side-shields. Nitrile should be used in all cases as a protective material. In addition the use of an MSA/NIOSH full face-piece
respirator with an organic vapor cartridge and particulate pre-filters will also be required for personnel working on site.

13.0 MEASUREMENT OF CHANGED CONDITIONS

Upon discovery of a possible changed condition, it will be necessary to make detailed chemical analysis to determine if chemicals in soil or groundwater actually pose an excess chemical risk. This requires testing in the laboratory. Laboratory testing requires time. The amount of time varies depending on the type of test. In general, the laboratory analysis can take on the order of 10-15 days unless special arrangements are made with the laboratory for more expensive "RUSH" results.

The soil and groundwater should be further isolated from worker and public exposure. Special handling and care must be taken in sampling and transporting soils for the laboratory tests to be accurate. The workers in physical contact with soils should have training consistent with 29 OSHA 1910.120. Alternatively, the contractor may elect to contact the engineer to assist with containment and sampling activities.

14.0 DISPOSAL OF EXCESS SOILS

Soils at this site may have varying degrees of chemical impact, ranging from no measurement to elevated concentrations of chemicals of concern. In the locations and at conditions of exposure evaluated by the assessment activities, these chemical impacts do not pose excess chemical risk. If soils leave their original locations or the site, the on-site conditions that allow control of exposures and risk management may no longer apply. If excess soils are produced from excavation as spoils which cannot be restored to original depths through the process of "first out, last in"’, they must be handled with special care.

The contractor should plan from onset of construction to maintain physical segregation of soils by degrees of depth during excavation activity. The worker or contractor must exercise care in documenting and recording the location and original elevations of the source of soils relative to site benchmarks and the original lot boundaries.

Excess soils produced by excavation and construction which cannot be used on the excavation site must be managed as discussed.

14.1 On-Site Disposal

If a changed condition has not been recognized with the excess soil generated on-site, the soil material can be considered “clean” and can be reincorporated into the project as needed. If a changed condition has been recognized then laboratory testing of the soil will be necessary to determine if the values exceed the Statewide Standards. Off-site removal of these soils shall be in accordance to 14.2.

14.2 Off-Site Disposal

If a changed condition has not been recognized with the excess soil generated on-site, and the excess soil cannot be incorporated into the site fill, the excess material shall be disposed of at locations provided by the Contractor.

Where changed conditions exist for soils that are excavated and stockpiled and where they cannot be incorporated into the site fill, the soil material must be removed from the site. The contractor
should isolate and contain these soils for testing. The contractor should seek assistance in these efforts from an environmental consultant relative to proper disposal of soil off-site.

Some alternative reuse relative to construction (i.e., landscaped berms, fill under roadways) might be coordinated for the project. However, this would not be a fast process and would require considerable pre-planning. The routine removal and off-site disposal of soil should be considered and planned for as transport and disposal to a landfill facility. Soils identified to date with chemical impact should be allowed for disposal at a local sanitary landfill permitted for waste disposal, known as a Subtitle D solid waste facility.
Figure 1

Project Vicinity
Figure 2

Eagle Window and Door AST/UST Location
APPENDIX A

HAZARDOUS MATERIALS INFORMATION
APPENDIX A - Toxicological Data Fact Sheets
Arsenic
Cadmium
Chromium
Lead
Chloroform
Methylene Chloride
Tetrachloroethylene
Polycyclic Aromatic Hydrocarbons
Pentachlorophenol
Dioxin
Arsenic

CAS ID #: 7440-38-2

Affected Organ Systems: Dermal (Skin), Gastrointestinal (Digestive), Hepatic (Liver), Neurological (Nervous System), Respiratory (From the Nose to the Lungs)

Cancer Effects: Known to be a Human Carcinogen

Chemical Classification: Inorganic substances

Summary: Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenic (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; it is still used in industrial applications. Organic arsenic compounds are as pesticides, primarily on cotton plants.

Community Members

ToxFAQs™ (/toxface/tf.asp?id=10&tid=4)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (/phs/phs.asp?id=18&tid=1)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

Fact Sheets (/toxfaq/FS.asp?id=1202&tid=3)
Chromated copper arsenate (CCA) is a water-soluble inorganic pesticide most commonly used as a wood preservative to make it resistant to attack by termites and fungi that cause decay.

ATSDR East Omaha Arsenic Site Information (http://www.atsdr.cdc.gov/ehp/omahaars2/index.html)
ATSDR East Omaha Arsenic Site Information

Toxicological and Health Professionals

Toxicological Profile (/toxprofiles/tp.asp?id=22&tid=5)
 Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

Quick reference guide providing information such as chemical and physical
Cadmium

CAS ID #: 7440-43-9

Affected Organ Systems: Cardiovascular (Heart and Blood Vessels), Developmental (effects during periods when organs are developing), Gastrointestinal (Digestive), Neurological (Nervous System), Renal (Urinary System or Kidneys), Reproductive (Producing Children), Respiratory (From the Nose to the Lungs)

Cancer Effects: Known to be a Human Carcinogen

Chemical Classification: Inorganic substances

Summary: Cadmium is a natural element in the earth’s crust. It is usually found as a mineral combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide).

All soils and rocks, including coal and mineral fertilizers, contain some cadmium. Most cadmium used in the United States is extracted during the production of other metals like zinc, lead, and copper. Cadmium does not corrode easily and has many uses, including batteries, pigments, metal coatings, and plastics.

Community Members

ToxFAQs™ (/toxfaqs/ff.asp?id=47&tid=15)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (/phs/phs.asp?id=46&tid=15)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

National Report on Human Exposure to Environmental Chemicals (/http://www.cdc.gov/exposurereport/)
Provides an ongoing assessment of the exposure of the U.S. population to environmental chemicals using biomonitoring.

Between 1995 and 2008, private citizens petitioned ATSDR about health concerns related to chemicals in the city’s air, water, and soil. The petitions focused on

- Chemicals released to soil from a former smelter;
- Chemicals released to air, soil, and water from two landfills;
- Chemicals released to air from refineries and petrochemical companies; and,
- Whether high birth-defect rates in the Corpus Christi area were in any way
Chromium

CAS ID #: 7440-47-3

**Affected Organ Systems:** Immunological (Immune System), Renal (Urinary System or Kidneys), Respiratory (From the Nose to the Lungs)

**Cancer Effects:** Known to be a Human Carcinogen

**Chemical Classification:** Inorganic substances

**Summary:** Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases. Chromium is present in the environment in several different forms. The most common forms are chromium(0), chromium(III), and chromium(VI). No taste or odor is associated with chromium compounds. Chromium(III) occurs naturally in the environment and is an essential nutrient. Chromium(VI) and chromium(0) are generally produced by industrial processes. The metal chromium, which is the chromium(0) form, is used for making steel. Chromium(VI) and chromium(III) are used for chrome plating, dyes and pigments, leather tanning, and wood preserving.

**Community Members**

**ToxFAQs** ([/toxfaqs/TF.asp?id=60&tid=17](http://toxfaqs/TF.asp?id=60&tid=17))
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

**Public Health Statement** ([/phs/phs.asp?id=60&tid=17](http://phs/phs.asp?id=60&tid=17))
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

ATSDR and Texas Department of State Health Services (DHS) are conducting an extensive review of environmental health concerns raised by the community members in Midlothian, Texas to determine if chemical releases from local industries could have affected the health of persons and animals in the area.

**Toxicological and Health Professionals**

**Toxicological Profile** ([/toxprofiles/tp.asp?id=60&tid=17](http://toxprofiles/tp.asp?id=60&tid=17))
Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

**ToxGuide** ([PDF 125KB](http://www.atsdr.cdc.gov/toxguides/toxguide-7.pdf))
Quick reference guide providing information such as chemical and physical properties, sources of exposure, routes of exposure, minimal risk levels, children's health, and health effects for a substance.
Lead

CAS ID #: 7439-92-1

Affected Organ Systems: Cardiovascular (Heart and Blood Vessels), Developmental (effects during periods when organs are developing), Gastrointestinal (Digestive), Hematological (Blood Forming), Musculoskeletal (Muscles and Skeleton), Neurological (Nervous System), Ocular (Eyes), Renal (Urinary System or Kidneys), Reproductive (Producing Children)

Cancer Effects: None

Chemical Classification: Inorganic substances

Summary: Lead is a naturally occurring bluish-gray metal found in small amounts in the earth’s crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing. Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from gasoline, paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years.

Community Members

ToxFAQs™ (/toxfaqs/tf.asp?id=93&tid=22)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (/phs/phs.asp?id=92&tid=22)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

National Report on Human Exposure to Environmental Chemicals (http://www.cdc.gov/exposurereport/)
Provides an ongoing assessment of the exposure of the U.S. population to environmental chemicals using biomonitoring.
Chloroform

CAS ID #: 67-66-3

Affected Organ Systems: Cardiovascular (Heart and Blood Vessels), Developmental (effects during periods when organs are developing), Hepatic (Liver), Neurological (Nervous System), Re (Urinary System or Kidneys), Reproductive (Producing Children)

Cancer Effects: Reasonably Anticipated to be Human Carcinogens

Chemical Classification: Volatile organic compounds

Summary: Chloroform is a colorless liquid with a pleasant, nonirritating odor and a slightly sweet taste. It will burn only when it reaches very high temperatures. In the past, chloroform was used as an inhaled anesthetic during surgery, but it isn’t used that way today. Today, chloroform is used to make other chemicals and can also be formed in small amounts when chlorine is added to water. Other names for chloroform are trichloromethane and methyl trichloride.

Community Members

ToxFaqs™ (/toxfaqs/tf.asp?id=52&tid=10)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (/phs/phs.asp?id=53&tid=10)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

Midlothian (http://www.atsdr.cdc.gov/sites/midlothian/index.html)
ATSDR and Texas Department of State Health Services (DSHS) are conducting an extensive review of environmental health concerns raised by the community members in Midlothian, Texas to determine if chemical releases from local industries could have affected the health of persons and animals in the area.

Toxicological and Health Professionals

Toxicological Profile (/toxprofiles/tp.asp?id=53&tid=10)
Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

Priority List of Hazardous Substances (/pl/)  
Prioritization of substances based on a combination of their frequency, toxicity and potential for human exposure at National Priorities List (NPL) sites.

Minimal Risk Levels (MRL) (/mrl/mrl.asp#16tag)
The MRL is an estimate of the daily human exposure to a hazardous substance.
Methylene Chloride

CAS ID #: 75-09-2

Affected Organ Systems: Cardiovascular (Heart and Blood Vessels), Hepatic (Liver), Neurological (Nervous System)

Cancer Effects: Reasonably Anticipated to be Human Carcinogens

Chemical Classification: Pesticides (chemicals used for killing pests, such as rodents, insects, or plants)

Summary:

Methylene chloride is a colorless liquid with a mild, sweet odor. Another name for it is dichloromethane. Methylene chloride does not occur naturally in the environment.

Methylene chloride is used as an industrial solvent and as a paint stripper. It may also be found in some aerosol and pesticide products and is used in the manufacture of photographic film.

Community Members

ToxFAQs™ (http://toxfaq/servlet/ld-31d461d-4a)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (http://toxfaq/servlet/ld-31d461d-4a)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

Midlothian (http://www.atdsr.cdc.gov/sites/midlothian/index.html)
ATSDR and Texas Department of State Health Services (DSHS) are conducting an extensive review of environmental health concerns raised by the community members in Midlothian, Texas to determine if chemical releases from local industries could or have affected the health of persons and animals in the area.

Emergency Responders

Medical Management Guidelines (MMG) for Acute Chemical Exposure: (http://toxfaq/servlet/ld-31d461d-4a)
Publication intended to aid emergency department physicians and other emergency healthcare professionals who manage acute exposures resulting from chemical incidents.

Toxicological and Health Professionals

Toxicological Profile (http://toxprofiles/cdc.gov/toxprofiles/toxprofile/toxprofile?did=31d461d-4a)
Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

Addendum to the Profile (http://www.atdsr.cdc.gov/toxprofiles/toxprofile/toxprofile?did=31d461d-4a)

Priority List of Hazardous Substances (http://www.atdsr.cdc.gov/toxprofiles/toxprofile/toxprofile?did=31d461d-4a)
Prioritization of substances based on a combination of their frequency, toxicity, and potential for human exposure at National Priorities List (NPL) sites.

Minimal Risk Levels (MRL) (http://mrl/mrllist.asp?did=31d461d-4a)
The MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse non-cancer health effects over a specified duration of exposure. The information in this MRL serves as a screening tool to help public health professionals decide where to look more closely to evaluate possible risk of adverse health effects from human exposure.
Tetrachloroethylene (PERC)

CAS ID #: 127-18-4

**Affected Organ Systems:** Developmental (effects during periods when organs are developing), Neurological (Nervous System), Respiratory (From the Nose to the Lungs)

**Cancer Effects:** Reasonably Anticipated to be Human Carcinogens

**Chemical Classification:** Volatile organic compounds

**Summary:** Tetrachloroethylene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products.

**Community Members**

[ToxFAQs™](https://toxFAQs tf.asp?ide=64&tid=48)

Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

[Public Health Statement](https://pha/phs.asp?id=63&tid=48)

Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

[ATSDR Camp Lejeune Site Information](https://www.atsdr.cdc.gov/sites/lejeune/index.html)

U.S. Marine Corps Base Camp Lejeune, North Carolina was established in 1942. In 1982, the Marine Corps discovered specific volatile organic compounds (VOCs) in the drinking water provided by two of the eight water treatment plants on base.

Water from the Tarawa Terrace Treatment Plant was contaminated by PCE (perchloroethylene or tetrachloroethylene).

**Emergency Responders**

[Medical Management Guidelines (MMG) for Acute Chemical Exposure](https://mmg/mmg.asp?id=62&tid=48)

Publication intended to aid emergency department physicians and other emergency healthcare professionals who manage acute exposures resulting from chemical incidents.

**Toxicological and Health Professionals**
Polycyclic Aromatic Hydrocarbons (PAHs)

CAS ID #: 83-32-9, 120-12-7

Affected Organ Systems: Dermal (Skin), Hepatic (Liver), Immunological (Immune System)

Cancer Effects: Reasonably Anticipated to be Human Carcinogens

Chemical Classification: Hydrocarbons (contain hydrogen and carbon atoms)

Summary: Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

Community Members

ToxFAQs™ (/toxfaqs/tf.asp?id=121&id=25)
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement (/pbs/phs.asp?id=120&id=25)
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

National Report on Human Exposure to Environmental Chemicals
(http://www.cdc.gov/exposurerreport/)
Provides an ongoing assessment of the exposure of the U.S. population to environmental chemicals using biomonitoring.

Toxicological and Health Professionals

Toxicological Profile (/toxprofiles/tp.asp?id=120&id=25)
Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

Priority List of Hazardous Substances (/Spl/)
Prioritization of substances based on a combination of their frequency, toxicity, and potential for human exposure at National Priorities List (NPL) sites.

Medical Education and Training

• Page last reviewed: March 3, 2011
Pentachlorophenol

CAS ID #: 87-86-5

**Affected Organ Systems:** Developmental (effects during periods when organs are developing), Endocrine (Glands and Hormones), Hematological (Blood Forming), Reproductive (Producing Children)

**Cancer Effects:** None

**Chemical Classification:** Nitrosamines/ethers/alcohols, Pesticides (chemicals used for killing pests, such as rodents, insects, or plants), Phenols/phenoxy acids

**Summary:** Pentachlorophenol is a manufactured chemical that does not occur naturally. Pure pentachlorophenol exists as colorless crystals. Impure pentachlorophenol (the form usually found at hazardous waste sites) is dark gray to brown and exists as dust, beads, or flakes. Humans are usually exposed to impure pentachlorophenol (also called technical grade pentachlorophenol). Pentachlorophenol was widely used as a pesticide and wood preservative. Since 1984, the purchase and use of pentachlorophenol has been restricted to certified applicators. It is no longer available to the general public. It is still used industrially as a wood preservative for utility poles, railroad ties, and wharf pilings.

**Community Members**

**ToxFAQs** ([/toxfaq/tf.asp?id=401&tid=70](http://toxfaq/tf.asp?id=401&tid=70))
- Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

**Public Health Statement** ([/phs/phs.asp?id=408&tid=70](http://phs/phs.asp?id=408&tid=70))
- Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.

- Provides an ongoing assessment of the exposure of the U.S. population to environmental chemicals using biomonitoring.

**Toxicological and Health Professionals**

**Toxicological Profile** ([/toxprofiles/tp.asp?id=402&tid=70](http://toxprofiles/tp.asp?id=402&tid=70))
- Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

**Addendum to the Profile** ([PDF, 44 KB](http://www.atsdr.cdc.gov/toxprofiles/pentachlorophenol_addendum.pdf))
- The purpose of Toxicological Profiles Addenda is to provide, to the public and other federal, state, and local agencies a non-peer reviewed supplement of the
Chlorinated Dibenzo-p-dioxins (CDDs)

CAS ID #: 

Affected Organ Systems: Dermal (Skin), Developmental (effects during periods when organs are developing), Immunological (Immune System), Reproductive (Producing Children)

Cancer Effects: Known to be a Human Carcinogen

Chemical Classification: Dioxins, Furans, PCBs (contain phenyl rings of carbon atoms)

Summary: CDDs are a family of 75 chemically related compounds commonly known as chlorinated dioxins. One of these compounds is called 2,3,7,8-TCDD. It is one of the most toxic of the CDDs and is the one most studied. In the pure form, CDDs are crystals or colorless solids. CDDs enter the environment as mixtures containing a number of individual components. 2,3,7,8-TCDD is odorless and the odors of the other CDDs are not known. CDDs are not intentionally manufactured by industry except for research purposes. They (mainly 2,3,7,8-TCDD) may be formed during the chlorine bleaching process at pulp and paper mills. CDDs are also formed during chlorination by waste and drinking water treatment plants. They can occur as contaminants in the manufacture of certain organic chemicals. CDDs are released into the air in emissions from municipal solid waste and industrial incinerators.

Community Members

ToxFAQs® ([toxFAQs/If.asp?id=563&id=63])
Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

Public Health Statement ([pha/phs.asp?id=563&id=63])
Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxological Profile.

National Report on Human Exposure to Environmental Chemicals ([http://www.cdc.gov/exposurereport/])
Provides an ongoing assessment of the exposure of the U.S. population to environmental chemicals using biomonitoring.

Toxicological and Health Professionals

Toxicological Profile ([toxprofiles/ip.asp?id=563&id=63])
Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.

Addendum to the Profile (PDF, 269KB) ([http://www.atsdr.cdc.gov/toxprofiles/cdds_addendum.pdf])
The purpose of Toxicological Profiles Addenda is to provide, to the public and other federal, state, and local agencies a non-peer reviewed supplement of the
ATTACHMENT 1 FROM AMENDED PHASE II ENVIRONMENTAL ASSESSMENT REPORT FOR THE CITY OF DUBUQUE FOR THE PROPERTY BOUNDED BY EITHER THE RAILROAD TRACKS OR THE U.S. 61/151 OVERPASS WHICH EVER IS FARTHER WEST, ELM STREET, 9TH STREET, 12TH STREET, ADJACENT TO 10TH STREET, AND WASHINGTON STREET BETWEEN 9TH STREET AND 10TH STREET IN THE CITY OF DUBUQUE, DUBUQUE COUNTY, IOWA DATED NOVEMBER 30, 2011

SITE PLAN

ATTACHMENT 1 FROM AMENDED PHASE II ENVIRONMENTAL ASSESSMENT REPORT FOR THE CITY OF DUBUQUE FOR THE PROPERTY BOUNDED BY EITHER THE RAILROAD TRACKS OR THE U.S. 61/151 OVERPASS WHICH EVER IS FARTHER WEST, ELM STREET, 9TH STREET, 12TH STREET, ADJACENT TO 10TH STREET, AND WASHINGTON STREET BETWEEN 9TH STREET AND 10TH STREET IN THE CITY OF DUBUQUE, DUBUQUE COUNTY, IOWA DATED NOVEMBER 30, 2011

SITE #8 MILLWORK DISTRICT SITE
INTERMODAL TRANSPORTATION CENTER
CITY OF DUBUQUE, IOWA

DESMA