



# MEMO

Coralville, IA

**TO:** Reach 4 Flood Control System Contractors      **DATE:** August 6, 2019

**FROM:** H. Scott Byram PE/Stanley Consultants

**SUBJECT:** Cedar Rapids Flood Risk Management Project  
Reach 4 – Stations 403+00 to 405+20  
Soil Management Plan

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## Introduction

The US Army Corps of Engineers is planning the construction of a flood control project along the Cedar River in Cedar Rapids, IA. The project, called the Cedar Rapids Flood Risk Management Project - Reach 4, will include construction of a flood wall and embankment approximately 2,400 feet in length, and associated utility and appurtenance construction. The project location is an urbanized area including residential, commercial and industrial land uses.

Soil contamination exceeding Iowa Statewide Standards for total lead has been identified in a portion of the project alignment. Accordingly, the Iowa DNR in a July 31, 2019 letter has required the preparation of a soil management plan which must be submitted to and approved by Iowa DNR prior to any excavation in/through the known area of lead impacted soil. The area to be included in the soil management plan is the project alignment between stations 403+00 and 405+20.

This document is intended to comply with that requirement.

The proposed project alignment is shown on Sheet C-101 of the project (attached).

Based on the size of the proposed project it is anticipated that a NPDES stormwater construction permit will be required for the project. Such permits require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). This document is not intended to substitute for a SWPPP, but rather to serve as an enhancement of the SWPPP which will be developed by others.

## Background

Stanley Consultants, Inc. (Stanley Consultants) performed a series of soil borings to evaluate environmental conditions along the floodwall alignment during late 2018 and early 2019.

Sampling locations are shown on Drawing B-101 (attached). The area of concern for which this document has been prepared was sampled during December of 2018. A total of four borings were performed. One composite sample was prepared for each boring and sent to the laboratory for analysis for the following parameters:

- Semi-Volatile Organic Compounds
- RCRA Metals
- Extractable Hydrocarbons by Iowa Method OA-2

A relatively small number of parameters were detected in each sample. These included waste oil, a small number of polynuclear aromatic hydrocarbons, and several heavy metals. An excerpt from the laboratory report showing the detected compounds is attached.

The results were then compared to the Iowa Statewide Standards for soils. Only one exceedance of a statewide standard was observed. That was for the heavy metal lead in boring CR-18-23R2 where a value of 1440 mg/Kg was observed versus the Statewide Standard of 400 mg/Kg.

Boring CR-18-23R2 was located at approximately Station 404+05, which is roughly the midpoint of the area of concern for this document.

Based on discussions with IDNR boring CR-18-23R2 is considered representative of the portion of the floodwall alignment between Stations 403+00 and 405+20. Accordingly the procedures outlined in this document are to be implemented for any soil excavation work between those stations.

### **Contaminants of Concern**

Evaluation of the results and associated comparison with Iowa Statewide Standards shows that the primary concern at the site is soil contamination by lead. None of the other parameters exceeded their respective Standard.

### **Soil Management Plan**

The proposed development includes the construction of a flood wall. It is anticipated that construction will include installation of sheet piling, excavation for a foundation, construction of the wall, installation of manholes and storm drainage sewers, demolition of existing utilities, and clearing and grading.

Evaluation, stockpiling, and disposal of excavated materials generated during these activities will be required to be in accordance with this document.

There is a temporary levee along the alignment in the project area. The plan for the project includes removal of this levee. The soil in the temporary levee is not considered contaminated. This plan applies to all soils below the elevation of the toe of the temporary levee between Stations 403+00 and 405+20.

The project will be located adjacent to the Cedar River. Accordingly dewatering may be necessary as part of the foundation and/or utility excavation and construction process. Appropriate evaluation, management, and disposal of dewatering fluids will also be included in the soil management plan.

The anticipated elements of the site development process are as follows:

1. Installation of SUDAS Chapter 7 compliant perimeter erosion and sediment controls
2. Installation of a SUDAS Chapter 7 compliant construction entrance
3. Removal of the temporary levee
4. Installation of sheet piling
5. Excavation for foundation and utilities, and stockpiling of resulting spoils
6. Evaluation of stockpiled spoils to determine appropriate disposal method
7. Loading and transport of stockpiled soils to disposal location
8. Backfill of excavations
9. Wall construction

- 10. Surface restoration
- 11. Final grading and site stabilization

These activities may occur in a different order than shown or may be staged such that portions of the site activities occur at different times. For instance, foundation excavation and backfill may be completed before most of the utility construction process is started. Alternately spoils resulting from the excavation process may be loaded on trucks as they are generated and hauled to a remote location and stockpiled pending the results of the evaluation needed for proper disposal. However all of the activities shown above will eventually occur. Each is described in detail below.

- 1. Installation of SUDAS compliant perimeter erosion and sediment controls

This is an element of the Construction SWPPP to be developed by others. It is included here to emphasize its importance.

- 2. Installation of a SUDAS compliant construction entrance

This is an element of the Construction SWPPP to be developed by others. It is included here to emphasize its importance.

- 3. Removal of the temporary levee

Soils from the temporary levee are not considered contaminated and may be removed and disposed as clean spoil material.

- 4. Installation of sheet piling

Any spoil generated during this activity must be managed as described in item 5 below.

- 5. Excavation for foundation and utilities, and stockpiling of resulting spoils

It is assumed a tracked excavator is used for this work. The excavator may stockpile the spoil adjacent to the excavation pending loading onto a truck or may load the spoil directly onto a truck for transport. Alternately the spoil may be moved to the stockpile location by loader.

If the spoil is to be stockpiled on site it should be transported to the stockpile location by the truck or loader and placed on a designated plastic lined location. Suitable plastic liners include visqueen, Hypalon, PVC or HDPE. The purpose of the liner is to prevent the transfer of contaminants from the spoil to the ground surface in the stockpile area. The spoil stockpile must be covered when not being filled or excavated. Suitable cover material includes any of the plastic materials noted above or a tarp. The cover is necessary to prevent dust generation and/or erosion of the spoil pile and subsequent migration from the stockpile area.

If the spoil is to be stockpiled off-site the truck box must be lined prior to placement of spoil in the truck, and the load covered before the truck leaves the site. The off-site spoil storage location must

be lined and covered as described above.

Regardless of the location chosen the spoil storage area should be surrounded by filter socks or silt fence (see SUDAS Chapter 7E-4 and 7E-14) to prevent sediment loss from the area.

6. Evaluation of stockpiled spoils to determine appropriate disposal method

Prior to disposal the stockpiled spoil material must be evaluated to determine the appropriate disposal procedure. Based on the contaminants identified during the December 2018 activities the following analytical procedures are required.

- Total and TCLP RCRA Metals
- Any other test required by the likely disposal facility

Test methodology should be in accordance with USEPA Publication SW-846, Test Methods for Evaluating Solid Waste.

Sampling frequency should be at least one composite sample per truck load of spoil (one truck load is assumed to be approximately 15 to 20 cubic yards of material). All of the samples collected during the work day may then be composited to represent one day's spoil generation. Each day's sample should then be analyzed for the parameters listed above.

These results may then be used to determine the appropriate disposal procedure for the spoil. If the soil is contaminated in excess any statewide standard as determined by the procedures shown in IAC 567-137 Iowa Land Recycling Program and Response Action Standards, it must be disposed as a waste material. If the soil exceeds the levels specified for the TCLP Test per 40 CFR 261, it must be managed as a RCRA hazardous waste.

Based on the information in the laboratory report it is likely the spoil will have to be disposed at the Linn County Landfill (or other IDNR Permitted Sanitary Landfill) as a Special Waste. The contractor must contact the proposed disposal facility for their information and analytical requirements and include those analysis in the work described above.

7. Loading and transport of stockpiled soils to disposal location

Once a disposal facility has been identified the spoil material may then be loaded onto trucks for disposal as waste material. The trucks must be lined and covered prior to shipment of the waste material.

Documentation of the dates, quantities, and locations of waste disposal must be maintained and provided to the owner and appropriate authorities.

8. Backfill of excavations

Clean fill material should be imported to the project location for use on backfilling the excavated areas. Spoil generated during the excavation process should not be used as backfill but rather

disposed as waste material as it is assumed to be contaminated.

9. Wall Construction

Wall construction is assumed to not require disturbance of a significant quantity of soil. Accordingly testing and/or special management of soil during this work is not likely to be required.

10. Surface restoration

Surface restoration is assumed to not require disturbance of a significant quantity of soil. Accordingly testing and/or special management of soil during this work is not likely to be required.

11. Final grading and site stabilization

This activity is assumed to be minor, and not require disturbance of a significant quantity of soil. Accordingly testing and/or special management of soil during this work is not likely to be required.

**Dewatering**

Fluids generated by dewatering activities on the site must not be discharged to the stormwater drainage system. The contractor must contact the City of Cedar Rapids to arrange for disposal of all dewatering fluids to the sanitary sewer system.

**Decontamination**

Excavation and spoil handling equipment should be decontaminated prior to leaving the site. The equipment should be power washed using plain water and the resulting fluids collected and disposed via the sanitary sewer system.

**Engineer's Certification**

I hereby certify that this plan, specification, or report was prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer in the State of Iowa.



Howard Scott Byram, P.E., BCEE  
Principal Environmental Engineer  
License Number: 10454 State: Iowa  
License Renewal Date: 12/31/19

## Acronyms and Abbreviations

ESA	Environmental Site Assessment
IDNR	Iowa Department of Natural Resources
mg/kg	Milligrams per kilogram
mg/L	Milligrams per Liter
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
SVOCs	Semi-volatile Organic Compounds
SCI	Stanley Consultants, Inc.
SUDAS	Iowa Statewide Urban Design and Specifications
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compounds

## References

TestAmerica Job ID: 310-146632-1, CR FCS East Side Geotech Investigation, 1/3/2019  
Iowa Statewide Urban Design and Specifications  
SW-846 – Test Methods for Evaluating Solid Waste, US Environmental Protection Agency  
IAC 567-137 Iowa Land Recycling Program and Response Action Standards  
40 CFR 261 – Identification and Listing of Hazardous Waste