CON 12-15
Doc #27850

SITE REMEDIATION WORK PLAN

City of Clarinda Firing Range
Clarinda, Iowa

Prepared for:

City of Clarinda
200 South 15th Street
Clarinda, IA 51632

Prepared by:

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4140 NE 14th Street
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Seneca Project Manager

Table of Contents

List of Appendices

Site Remediation Work Plan
City of Clarinda Firing Range
Clarinda, Iowa

Introduction

Scope and purpose

The City of Clarinda has retained Seneca Companies (Seneca) to complete the Site Remediation Work Plan for the above referenced site per Iowa Department of Natural Resources (IDNR) correspondence dated October 12, 2012. The City of Clarinda is planning on closing the firing range, therefore an initial investigation of the firing range floor and impact berm was conducted. The initial investigation was conducted in August 1012 and the results were provided to the IDNR in October 2012. IDNR correspondence dated October 12, 2012 requested that a Site Remediation Work Plan be completed to describe what type of soil remediation, a soil and groundwater sampling plan, and the proposed soil disposal subsequent to remediation of the contaminated soil. This Work Plan is intended to summarize the nature and scope of the activities that Seneca believes will provide a remediation technique that will eliminate the present risk posed to human health and the environment.

Site History

The Property is currently owned by the City of Clarinda. The site has been utilized as a firing range for over thirty (30) years. The owner of the property requested the investigation because they are closing the firing range.

Seneca conducted a Limited Surface/Subsurface Investigation in August 2012. The Limited Surface/Subsurface Investigation involved collecting soil samples from various depths on the floor and the berms of the firing range. Soil samples were analyzed for Total Lead and Antimony.

Sampling performed at the subject site indicates that soil samples from four (4) grids on the floor of the firing range and twenty-nine (29) grids on the impact side of the berm contain Total Lead concentrations and fourteen (14) grids on the impact side of the berm contained Antimony concentrations greater than the Statewide Standards.

Current Site Conditions

Site Owner and Usage

The subject property is presently owned by the City of Clarinda and is operated as a firing range for the city police and correctional facility personnel.

Proposed Activities

The following will be conducted to remove the contaminated soils, sieve out the bullets and/or bullet fragments, resample the soil, and determine the proper soil disposal methods. The following work will be completed by 40 hr Hazwoper certified personnel.

The top six (6) inches of soil from grids 3, 9, 10, and 11 from the floor of the range will be scraped and stock-piled in batches. The contaminated soil from the impact side of the berm will be removed and stock-piled in batches. By processing the soil in batches we hope to reduce the amount of soil requiring disposal. Various depths of removal will be based on sample collection during the Limited Surface/Subsurface Investigation and field screening with the XRF Spectrometer.

Subsequent to the soil being removed, an XRF Spectrometer will be utilized to screen the firing range floor and impact side of the berm by placing the spectrometer directly on the soil and taking a reading. A field screening level of 100 ppm will be set as the excavation target level. At a minimum, soil will be field screened every 25 ft^2 of the excavated areas. Upon completion of excavation and field screening with the XRF, confirmation soil samples will be collected for laboratory analysis from points indicating the highest readings. One (1) soil sample will be collected for every 50 ft^2 of the excavated area(s). Soil samples will then be hand packed into laboratory supplied four (4)-ounce soil jar with clean nitrile gloves until minimal air space is observed in the jar. Samples will be iced and shipped to Test America Laboratories, Inc. under full chain of custody (COC) for analysis of Total Lead and Antimony by utilizing the EPA Method SW 6010C – Total Metals by SW 846 Series Method. If soil sample results indicate concentrations greater than the Iowa State wide Standard for Total Lead and Antimony (400 mg/kg and 32 mg/kg, respectively) the soil in those area(s) will be removed and stockpiled in separate piles. Subsequent to the removal of soil, soil samples will then be collected and submitted for confirmation.

Upon verification that contaminated soils exceeding the Iowa Statewide Standards have been removed from the firing range floor and impact side of berm, the stockpiled soil will be sieved utilizing a screen equipped with an approximately 3/8" screen. Lead accumulated from the screening process will be placed in 55-gallon drums to be recycled. Sieved soil will then be stockpiled in their respective batches and samples will be collected and submitted to the laboratory to be analyzed for Total Lead and Antimony by utilizing the EPA Method SW 6010C – Total Metals by SW 846 Series Method. If the results are less than the Iowa Statewide Standards for Soil (Lead – 400 mg/kg, Antimony – 32 mg/kg) that batch of soil can remain on the property. If the level is greater than the Statewide Standard(s), the soil samples will then be run for TCLP RCRA Metals by EPA Method SW-6010C and 7470A. This will allow us to determine proper disposal requirements. If the soil results are less than the threshold levels to be disposed of in the Page County Landfill, the soil will be taken to the landfill for disposal. If the levels are greater than the threshold for the Page County Landfill, arrangements for disposal will be made at that time.

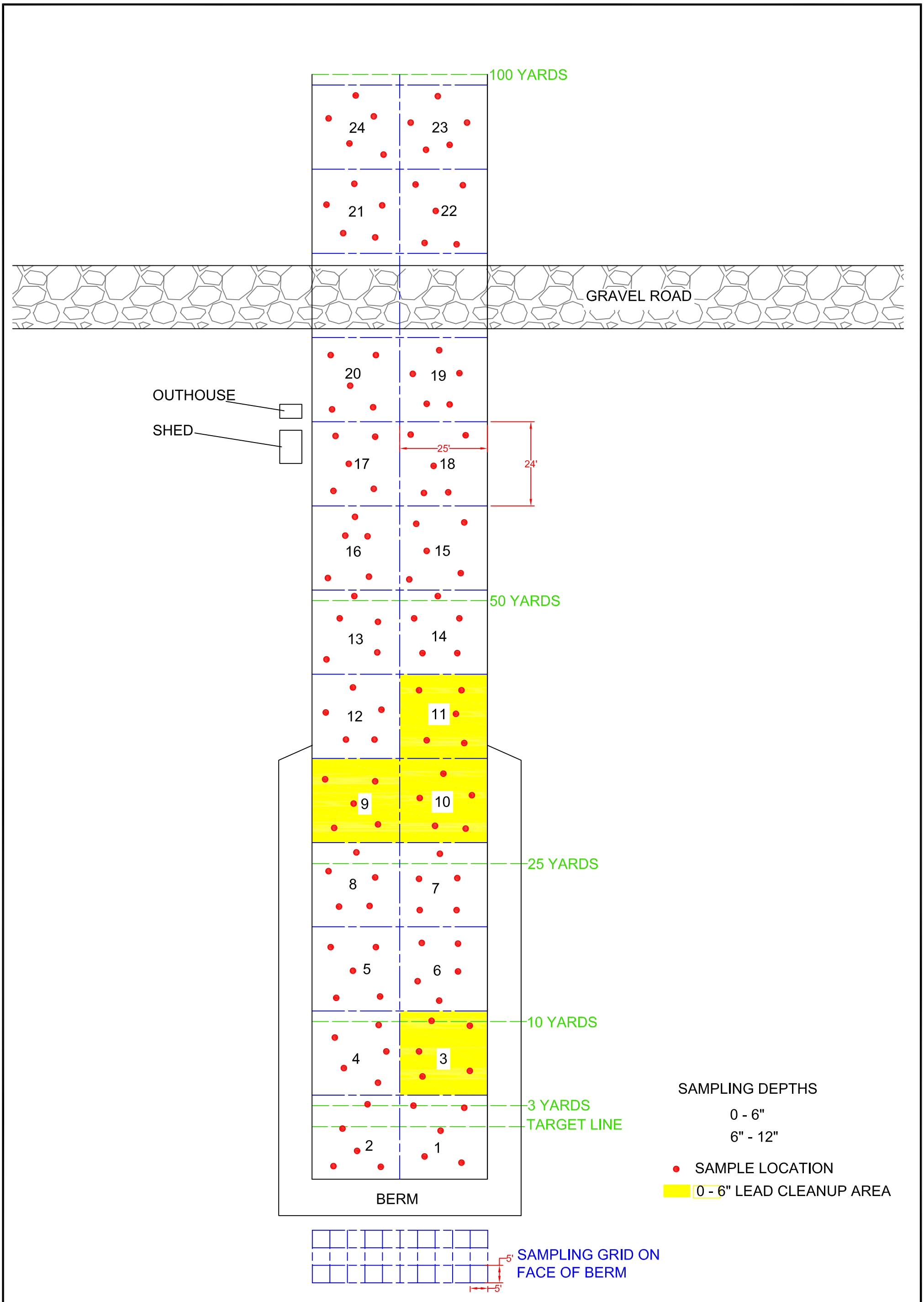
Seneca will install two (2) temporary monitoring wells (approximately 20 feet deep) to assess the potential impact to groundwater in the down-gradient from soil contamination found on the range floor and impact side of the berm. One (1) groundwater sample will be collected from each temporary monitoring well and analyzed for lead and antimony. Groundwater samples will be obtained using clean disposable bailers, poly string, and disposable nitrile gloves. Monitoring well purging and sampling processes were adopted from U.S. EPA protocols for groundwater sampling and monitor well purging. The utilized

methodology assures minimum risk of cross-contamination and allows for collection of groundwater that is representative of the surrounding geologic medium. Well purging will consist of three (3) casing volumes or until dry; groundwater will be allowed to recover following purging. Groundwater samples will then transferred to laboratory cleaned containers, iced, and shipped to Test America Laboratories, Inc. under full chain of custody (COC) for analysis.

Data Compilation and Reporting

All data from the remediation and sampling activities, along with the historic soil data will be complied and summarized in the Remediation Report. The Remediation Report is intended to summarize the nature and scope of the contamination remaining at the site and provide the Iowa DNR with an accurate evaluation of the present risk posed to human health and environment by soil and/or groundwater contamination discovered during the investigations and subsequent to the remediation. The reporting stage of the project will be completed subsequent to the remediation and soil and groundwater sampling.

Appendix 1
Scaled Site Maps



SHEET NO.: 1

PROJECT NO.: 6360020

FILENAME: 6360020

SCALE: 1"=25'

CHECKED BY: CLARINDA, IA

DRAWN BY: JENNIFER BAKER

DATE: 7/20/2012

JOB DESCRIPTION:
CITY OF CLARINDA - FIRING RANGE
CLARINDA, IA

SHEET TITLE:
SCALED SITE MAP -
FIRING RANGE FLOOR SAMPLING GRID (LEAD EXCEEDANCES)

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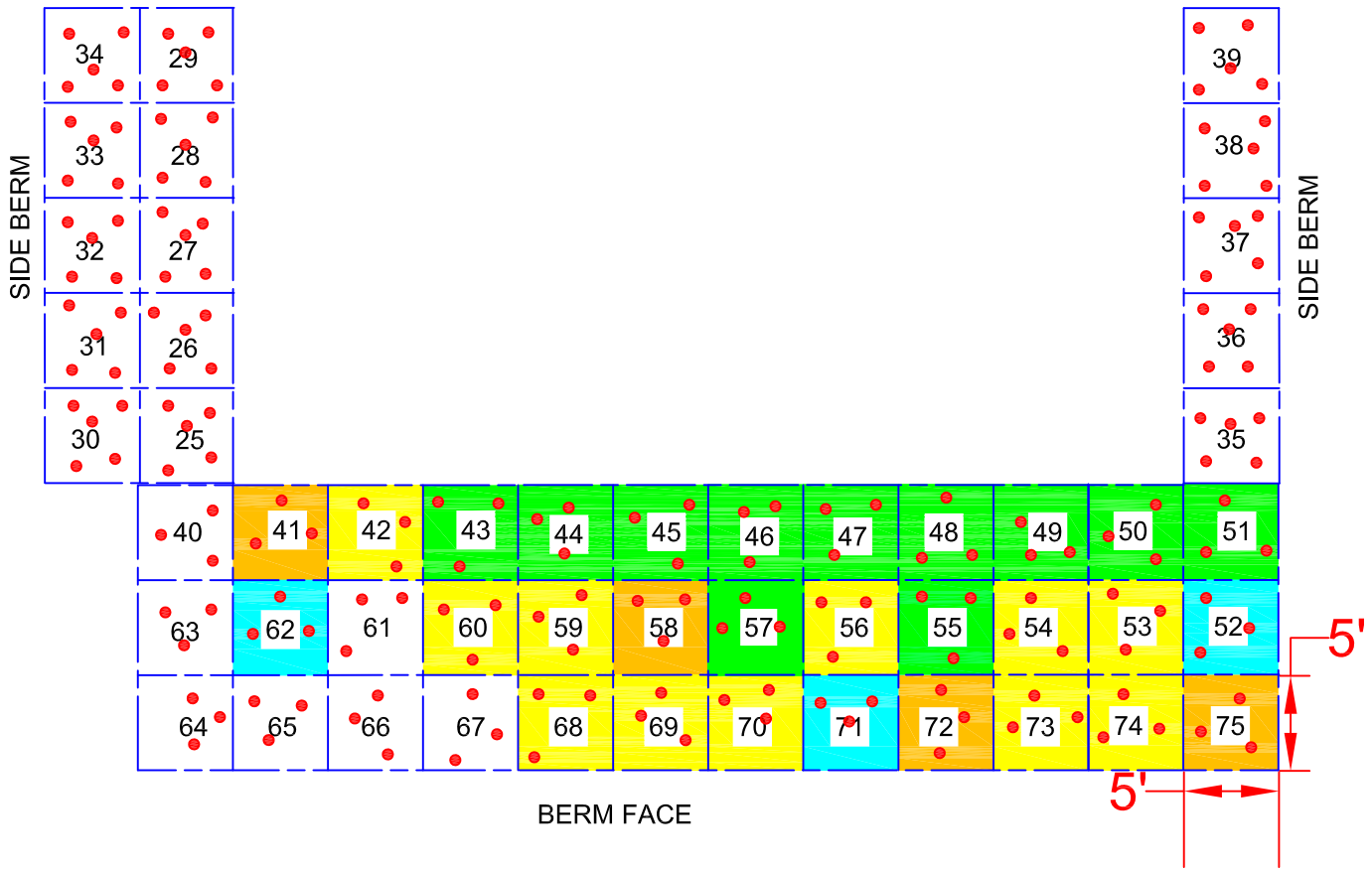
The Complete Solution

N E S W

REV. NO.:

DATE:

FACE OF BERM SAMPLING GRID (LEAD EXCEEDANCES)



BERM FACE SAMPLING DEPTHS

0 - 6"
6" - 12"
12" - 18"
18" - 24"

SIDE BERM SAMPLING DEPTH

0 - 6"

- SAMPLE LOCATION
- 0 - 6" LEAD CLEANUP AREA
- 6" - 12" LEAD CLEANUP AREA
- 12" - 18" LEAD CLEANUP AREA
- 18" - 24" LEAD CLEANUP AREA

REV. NO.	DATE:

N W E S

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JOB DESCRIPTION: CITY OF CLARINDA - FIRING RANGE
CLARINDA, IA

SHEET TITLE: FACE OF BERM SAMPLING GRID (ANTIMONY EXCEEDANCES)

DATE: 7/20/2012
DRAWN BY: JENNIFER BAKER
CHECKED BY: BLAINE KUSSATZ
SCALE: 1"=10'
FILENAME: 6360020
PROJECT NO: 6360020
SHEET NO. 2