PROJECT SPECIFIC PLAN FOR AREA 9, PHASE III OUTFALL DITCH PREDESIGN INVESTIGATION (SUPPLEMENT TO 20300-PSP-0011)

DEMOLITION, SOIL AND DISPOSAL PROJECT

FERNALD CLOSURE PROJECT
FERNALD, OHIO

MAY 2004

U.S. DEPARTMENT OF ENERGY

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PROJECT SPECIFIC PLAN FOR AREA 9 PHASE III OUTFALL DITCH PREDESIGN INVESTIGATION (SUPPLEMENT TO 20300-PSP-0011)

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FINAL

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FERNALD CLOSURE PROJECT

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LIST OF ACRONYMS AND ABBREVIATIONS

A9PIII	Area 9, Phase III
ASCOC	area-specific constituent of concern
ASL	analytical support level
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	constituent of concern
DOE	U.S. Department of Energy
DQO	Data Quality Objective
DSDP	Demolition, Soil and Disposal Project
EMS	Excavation Monitoring System
FACTS	Fernald Analytical Computerized Tracking System
FCP	Fernald Closure Project
FRL	final remediation level
HPGe	high-purity germanium (detector)
MH	manhole
OSDF	On-Site Disposal Facility
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
PSP	Project Specific Plan
QA/QC	Quality Assurance/Quality Control
RSS	Radiation Scanning System
RTIMP	Real-Time Instrumentation Measurement Program
RTRAK	Real-Time Radiation Tracking System
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
SMMP	Soil and Miscellaneous Media Sampling
TAL	Target Analyte List
V/FCN	Variance/Field Change Notice
WAC	Waste Acceptance Criteria
WAO	Waste Acceptance Organization

1.0 INTRODUCTION

This project specific plan (PSP) describes the data collection activities necessary to support predesign of Area 9, Phase III (A9PIII), Outfall Ditch Investigation. The general information that is routinely addressed in this PSP can be found in 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. While this PSP (21140-PSP-0002) has section headings similar to a full-length PSP, where the information in the section is identical to the information in the general PSP (20300-PSP-0011), a reference to this general PSP is made and the information is not repeated.

1.1 PURPOSE

The purpose of this PSP is to provide specific direction regarding the predesign sampling, analysis, and data management for A9PIII. Additionally, sampling under this PSP will be done to gain geotechnical information about the soil conditions immediately adjacent to the old outfall line. This information will be used to develop the excavation approach for removing the old outfall line. The detailed information for predesign includes reasons for sample collection, sample locations, number of borings, depth intervals, constituents of concern (COC), sample mass, and analytical methodologies.

1.2 SCOPE

The area included within the scope of this PSP is the offsite property between the eastern boundary of the Fernald Closure Project (FCP) and the Great Miami River in which both the old and new outfall lines pass through. See Figure 1-1 for the area included in the predesign sampling of this PSP. The schedule for implementation of this PSP is expected to begin in May 2004 and continue through the completion of the project.

1.3 VARIANCE / FIELD CHANGE NOTICE (V/FCN) DOCUMENTATION

Field conditions may arise that warrant a different decision process for defining the extent of contamination or for verifying that soil is below final remediation level (FRL) concentrations. Factors that will be considered under special circumstances include safety of the workers, cost effectiveness, the need for a timely response, and impending weather conditions. In the event that a change in the characterization approach is needed, the Characterization Manager or designee must prepare a V/FCN, FS-F-4162. The completed V/FCN must contain the signatures of all affected organizations, which at a minimum includes the Project Manager, Characterization Manager, Waste Acceptance Organization (WAO), and Quality Assurance/Quality Control (QA/QC) but may also include Soil Sampling and/or the Analytical Program Manager, as appropriate. A time-critical variance may be obtained in cases where

expedited approval is needed to avoid costly project delays. In the case of a time-critical variance, verbal or written approval (electronic mail is acceptable) must be received from the Characterization Manager and from QA/QC prior to implementing the variance. The completed approved V/FCN form must be completed within seven working days after the time-critical variance is approved. Additionally, V/FCNs that are considered to be significant will require approval from the regulatory agencies in accordance with Demolition Soil and Disposal Project (DSDP) agreements. Changes to the PSP will also be noted in the applicable Field Activity Logs.

1.4 KEY PERSONNEL

The team members responsible for coordination of work in accordance with this PSP are listed in Table 1-1.

TABLE 1-1

KEY PERSONNEL

Title	Primary	Alternate
Department of Energy (DOE) Contact	Nina Akgunduz	Johnny Reising
DSDP Project Manager	Jyh-Dong Chiou	Rich Abitz
Characterization Manager	Frank Miller	Rich Abitz
Area 9, Phase III	Greg Lupton	Denise Arico
RTIMP Manager	Brian McDaniel	Dale Seiller
Soil Sampling Manager	Tom Buhrlage	Jim Hey
Surveying Manager	Jim Schwing	Andy Clinton
WAO Contact	Linda Barlow	TBD
Construction Manager	Warren Hooper	Charles Carney
Engineering Lead	Tony Snider	Dave Russell
Laboratory Contact	Heather Medley	Kathy Leslie
Data Validation Contact	Jim Chambers	Andy Sandfoss
Field Data Validation Contact	Dee Dee Edwards	Andy Sandfoss
Data Management Lead	Greg Lupton	Denise Arico
Radiological Control Contact	Corey Fabricante	Mike Schneider
FACTS/SED Database Contact	Kym Lockard	Susan Marsh
Quality Assurance Contact	Reinhard Friske	Darren Wessel
Safety and Health Contact	Gregg Johnson	Jeff Middaugh

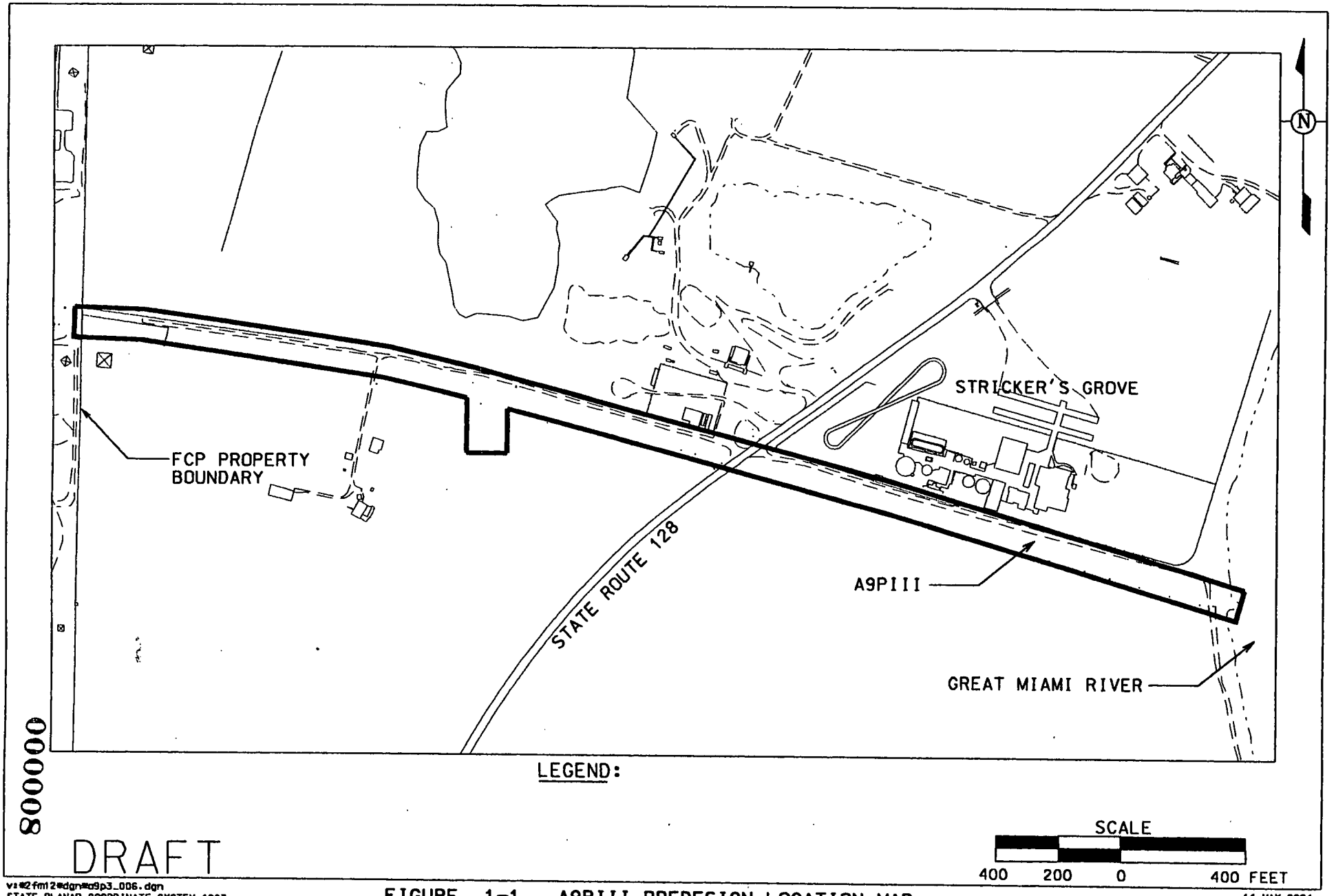

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FIGURE 1-1. A9PIII PREDESIGN LOCATION MAP

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2.0 AREA-SPECIFIC WORK REMAINING STATUS

2.1 AREA 9, PHASE III

2.1.1 History

Area 9, Phase III is located offsite, stretching east from the eastern boundary of the Fernald Closure Project (FCP) to the Great Miami River. The area has been established to encompass the land that the old outfall line passes through. The old outfall line was designed and built in 1951. In 1965, the outfall line was damaged by severe flooding and reconstructed between 1965 and 1966. In April 1989, an overflow of the old outfall line occurred at manhole 180. The old outfall line was replaced with a new higher capacity outfall line in 1992.

After the overflow of the old outfall line at manhole 180, soil and water samples were collected. Results of these samples were reported to the Department of Energy (DOE) and the property owner. In May 1989, characterization soil samples were taken. The results of the characterization sampling revealed that the soil immediately to the east of manhole 180 exceeded the adopted criteria for soil removal for the site area at that time. The criteria identified for this removal action was 52 parts per million (ppm) total uranium and/or 46 ppm total thorium. These action levels were established and used prior to the development of the current Final Remediation Levels (FRL). The affected area was eight feet by eight feet by two feet deep and was excavated in June 1989. Following excavation, samples were collected and analyzed with results demonstrating that the soil concentration criteria were achieved, and the excavated area was backfilled.

In 1993, still prior to the establishment of FRLs, additional samples were collected along the Great Miami River bank near the point of the outfall line discharge. The samples were split between an off-site commercial laboratory and the on-site laboratory. The on-site sample results, which were above the FRL in four borings, appear to be questionably high in comparison to the off-site laboratory's analytical results. All of the results from the off-site laboratory were below FRL. Therefore, confirmatory samples will be collected from the borings whose results were above FRL.

2.1.2 Predesign

Predesign will be performed under the guidelines of Section 4.0 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

2.1.2.1 Scope

This PSP covers all data collection activities associated with predesign in A9PIII. Fifty-four (54) boring locations have initially been selected within this investigation area to be submitted for analysis. Refer to Section 4.3 for a detailed description of physical sample identification.

All data collection activities will be consistent with the Sitewide CERCLA Quality Assurance Plan (SCQ) and Section 3.1 of the Sitewide Excavation Plan (SEP). Physical samples will be collected in accordance with Data Quality Objective (DQO) SL-048. The data will be utilized to assess whether COC concentrations in these areas are lower than the FRLs outlined in the OU5 Record of Decision. If necessary, the data collected under this plan will also be utilized to determine whether soil and soil-like material from the area meet the OSDF WAC, as defined in the SEP, the OSDF WAC Attainment Plan, and the Impacted Materials Placement Plan.

2.1.2.2 Determination of FRL ASCOCs and WAC ASCOCs

The FRL COCs for A9PIII are listed in Section 2.1.2.2.2 of this document. Although technetium-99 and uranium are WAC COCs, their presence is not anticipated to approach the OSDF WAC limit. Other than technetium-99 and uranium, there are no other WAC COC investigations planned for this area.

2.1.2.2.1 WAC ASCOCs

Historical data from the area were compared to the OSDF WAC to identify areas that exceed the OSDF WAC. This comparison confirmed that there are no known areas within the A9PIII that exceed the OSDF WAC. However, through predesign sampling and excavation control the possibility of finding above-WAC material still exists, but is highly unlikely.

2.1.2.2.2 FRL ASCOCs

The FRL ASCOCs listed below were selected for sampling based on the results of historical samples collected from this area. All of the constituents listed below were detected in the area, and all of the constituents with the exception of Radium-226 and Radium-228 were detected above the FRL, which was established years after the data were generated. The FRL ASCOCs for the A9PIII are as follows:

Primary Radiological ASCOCs:

- Radium-226
- Radium-228
- Thorium-232
- Thorium-228
- Total Uranium

Secondary ASCOCs:

- Cesium-137
- Technetium-99

2.1.2.3 Sampling Strategy

2.1.2.3.1 WAC Sampling Strategy

This section is not applicable. There are no known WAC areas defined in A9PIII.

2.1.2.3.2 FRL Sampling Strategy

The physical sampling strategy is based upon historical data and has been broken out into three approaches: sampling around manholes, sampling near the Great Miami River bank, and discrete confirmatory sample locations. Unless otherwise specified, the majority of the sampling locations will be sampled at the soil surface (0-0.5 feet) for the entire list of FRL ASCOCs. The remaining sampling intervals were chosen to target the sample depths of historical FRL exceedances.

2.1.2.3.2.1 Manhole Soil Sampling Strategy

Sampling locations have been selected to provide adequate coverage of the area surrounding each of manholes along the outfall line. The sampling locations around the manholes were divided into three groupings as follows: Manholes (MH) 177, 178, and 179, MH 180, and MH 181. See Appendix A for the target analyte lists and Appendix B for the boring table, sample depths, and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information. Boring depths will vary depending on the historical depths of contamination.

2.1.2.3.2.1.1 Manholes 177, 178, and 179

Sampling locations were selected to adequately cover the area between MH 177 and MH 179 (See Figure 2-1). There was one historical FRL exceedance for total thorium at sampling location MH 177-5 that will be investigated by placing a biased boring location (A9P3-MH177-2) at this historical point.

2.1.2.3.2.1.2 Manhole 180

As discussed in Section 2.1.1, MH 180 overflowed in 1989. The overflow covered and contaminated an area south and east of MH 180. The area of the overflow was sampled and remediated in 1989. In order to assess potential residual contamination, an area covering all historical locations that exhibited above FRL results has been established. The locations in this area will have a sampling interval from soil surface to 1.5 feet below surface (0 – 1.5 feet) and will be analyzed for the entire list of FRL ASCOCs. This sampling interval will be composited and analyzed by the laboratory. This sampling interval was

chosen because it represents the depth interval for all of the FRL exceedances in this area. The source of these exceedances is presumed to be from the 1989 overflow event. Predesign borings have not been positioned at the historical locations that have FRL exceedances; however, sample locations have been selected to adequately cover the overflow area including the FRL exceedances (See Figure 2-2). There were FRL exceedances in the overflow area for the following constituents:

- Two exceedances for technetium-99 (Tc-99)
- Nine exceedances for total thorium
- Three exceedances for thorium-228 (Th-228)
- One exceedance for thorium-232 (Th-232)

2.1.2.3.2.1.3 Manhole 181

Sampling locations were selected to adequately cover the area surrounding MH 181 (See Figure 2-3). There were three FRL exceedances in the area surrounding MH 181, which will be investigated by biasing boring locations at each of these exceedances. There was one exceedance for cesium-137 (Cs-137) at historical boring 1530 that will be investigated by boring A9P3-MH181-1. Additionally, there were two exceedances for Tc-99, one at historical boring MH-181-4 and one at historical boring MH-181-6. Boring MH-181-4 will be investigated by boring A9P3-MH181-2, and boring MH-181-6 will be investigated by boring A9P3-MH181-17.

2.1.2.3.2.2 Great Miami River Bank Sampling Locations

There were FRL exceedances for total thorium and total uranium in four borings near the Great Miami River Bank by the outfall line discharge. As stated in Section 2.1.1, conflicting data was received from an off-site and on-site laboratory. These locations are being sampled to determine whether or not these FRL exceedances were legitimate. Boring 11178 had FRL exceedances for total thorium and total uranium, and will be investigated by boring A9P3-GMRB-1. Boring 11172 had FRL exceedances for total thorium at varying depths and will be investigated by boring A9P3-GMRB-2. Boring 11180 had an FRL exceedance for total thorium and will be investigated by boring A9P3-GMRB-3. Finally, boring 11181 had an FRL exceedance for total uranium and will be investigated by boring A9P3-GMRB-4. See Appendix A for the target analyte lists and Appendix B for the boring table, sample depths, and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information. Boring depths will vary depending on the historical depths of contamination.

2.1.2.3.2.3 Discrete Sampling Location

One discrete sampling location has been identified that has a historical above FRL result and falls outside of the areas covered by manhole sampling and Great Miami River Bank sampling. This historical

location is boring 1532, which had a FRL exceedance for Cs-137, and will be investigated by boring A9P3-MH181-16. See Appendix A for the target analyte list and Appendix B for the boring table, sample depths, and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information.

2.1.2.3.3 Manhole Water Sampling Strategy

The five manholes (MH177, MH178, MH179, MH180, and MH181) along the offsite portion of the old outfall line will be opened and sampled. Any available water will be sampled, and if there is a sufficient volume of sediment available, then a separate sediment sample will be collected. The water will be analyzed by ICPMS for total uranium and total thorium (Th-232) as well as by GPC for Tc-99. The sediment, if available will be analyzed for the list found in target analyte list A. See Appendix A for the target analyte lists and Appendix B for the boring table and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information.

2.1.2.3.4 Geotechnical Sampling Strategy

Six borings were identified along the length of the outfall line as shown in Figures 2-2, 2-4, and 2-5. These locations were spaced to provide representative information about the physical properties of the soil along the length of the outfall line. A geologist will be present during all geotechnical sampling, and a boring log is required for each geotechnical boring. See Appendix A for the target analyte lists and Appendix B for the boring table and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information.

TABLE 2-1

SAMPLING AND ANALYTICAL REQUIREMENTS

Analyte	Method	Sample Matrix	ASL	Preserve	Hold Time	Turn Around Time	Container[b]	Minimum Sample Mass
Radiological (TAL A)	Gamma Spec, GPC, or LSC (Off-site)	Solid	D/E[a]	None	12 months	30 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL B)	Gamma Spec (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL C)	Gamma Spec (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL D)	Gamma Spec (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL E)	GPC or LSC (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	100 g
Radiological (TAL F)	Gamma Spec (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL G)	Gamma Spec (Off-site)	Solid	D/E[a]	None	12 months	7 day	Plastic or stainless steel core liner or glass or polyethylene sample container	400 g (800 g)[c]
Radiological (TAL A, B, C, D, E, F, or G)	Gamma Spec, GPC, or LSC (Off-site)	Liquid (rinsate[d])	D/E[a]	HNO_3 pH<2	6 months	30 day	Glass or Polyethylene	4 liters
Radiological (TAL E & F)	GPC & ICP/MS (On-site)	Liquid	B	HNO_3 pH<2	6 months	7 day	Glass or Polyethylene	1 liter
Geotechnical (TAL H)	ASTM D2216 (On-site)	Solid	A	None	1 year	30 day	Plastic or stainless steel core liner	500 g
Geotechnical (TAL I)	ASTM D422 (On-site)							
Geotechnical (TAL J[e])	ASTM D4318 (On-site)							
Geotechnical (TAL K)	ASTM (On-site)							

[a] Samples will be analyzed according to Analytical Support Level (ASL) D requirements but the minimum detection level may cause some analyses to be considered ASL E.

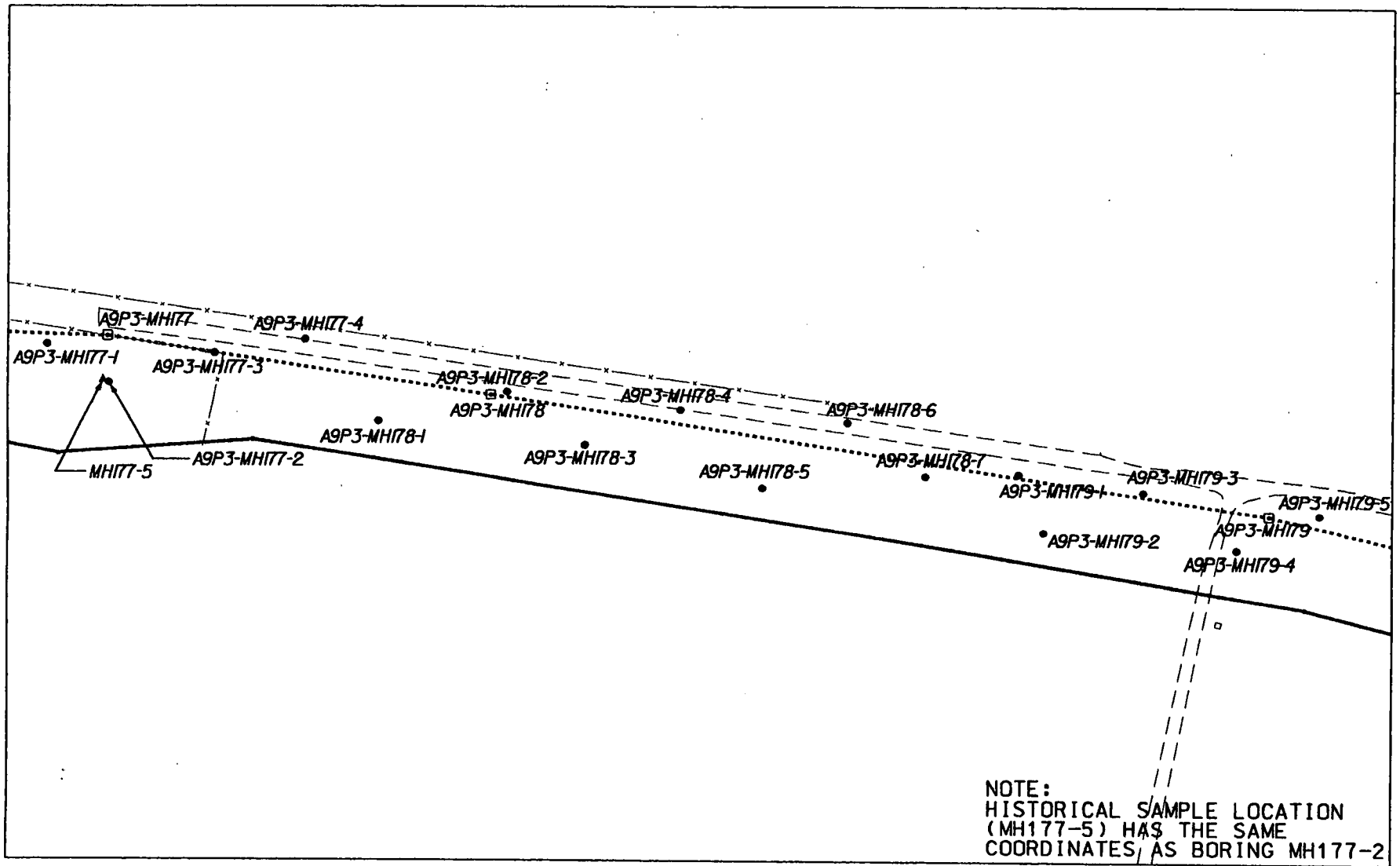
[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.

[c] At the direction of the Field Sampling Lead, triple the specified volume must be collected for all samples at one location per day in order for the contract laboratory to perform the required quality control analysis. The samples shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory QC".

[d] If "push tubes" are used for sampling, the off-site laboratories will be sent container blanks. If an alternative sample method is used, the Field Technicians will collect a rinsate.

[e] For coarse-grained materials, perform Atterberg Limits tests only on those samples whose fines content (defined as the percent passing the No. 200 sieve) is at least 25%).

ASL – analytical support level
LSC – liquid scintillation counting
GPC – gas proportional counting
KPA – kinetic phosphorescence analyzer



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LEGEND:

- • BORING LOCATION
- □ MANHOLE
- ▲ HISTORICAL ABOVE-FRL BORING
- ····· OLD OUTFALL LINE
- ——— NEW OUTFALL LINE

SCALE

100 50 0 100 FEET

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FIGURE 2-1. PREDESIGN SAMPLE LOCATIONS FOR MH 177, MH 178 AND MH 179 AREA

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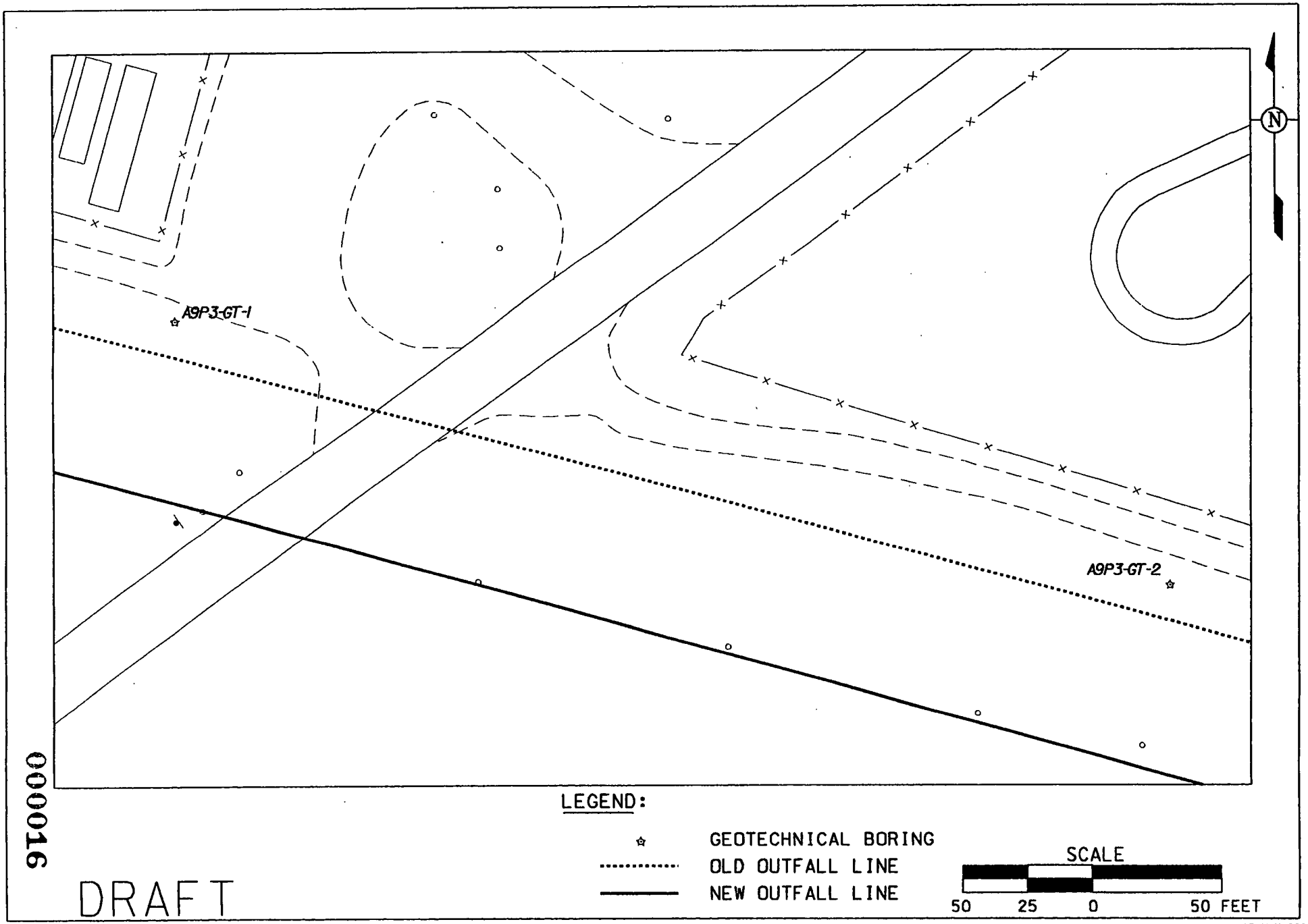

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STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 2-2. PREDESIGN SAMPLE LOCATIONS NEAR STATE ROUTE 128

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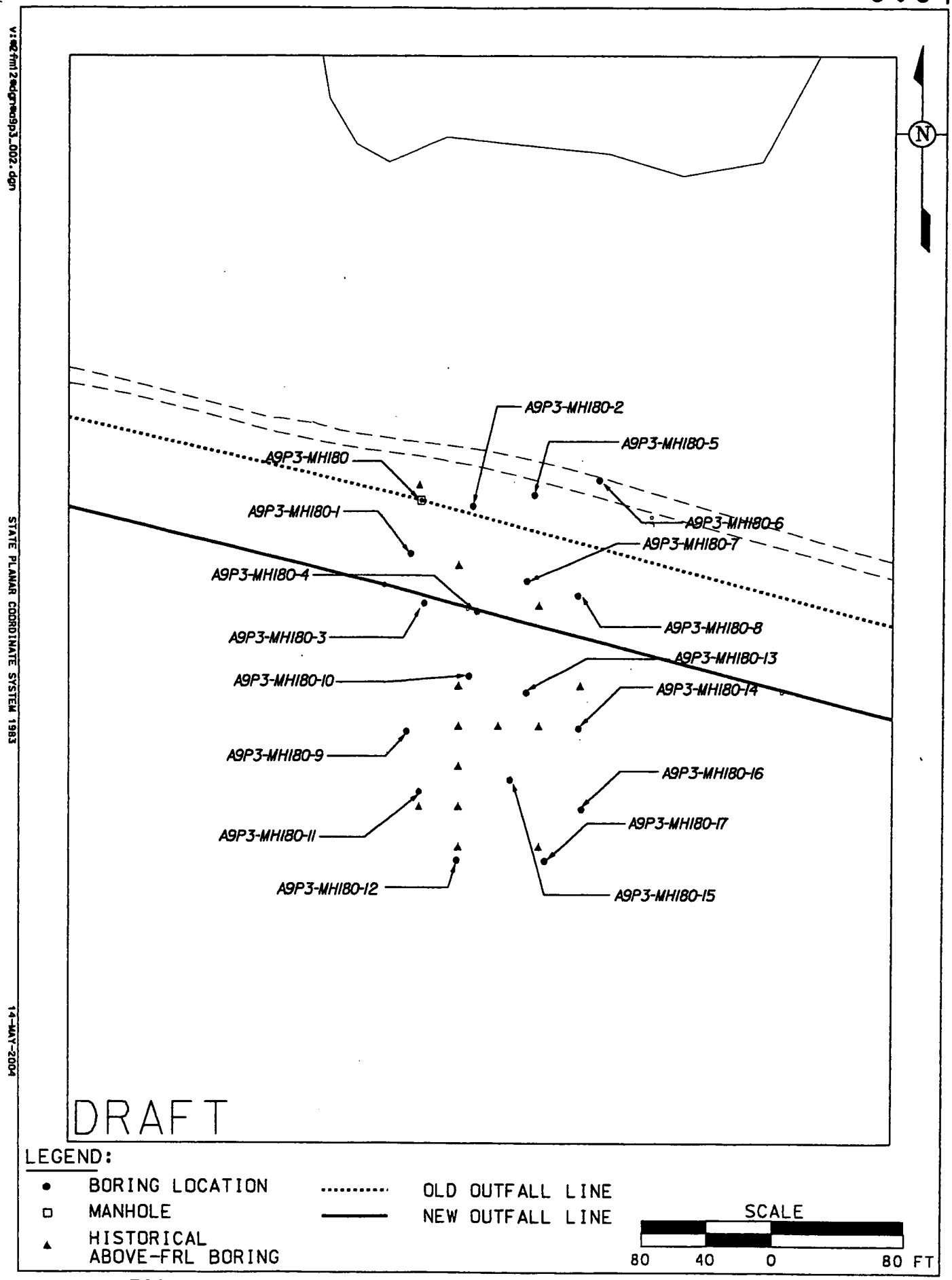
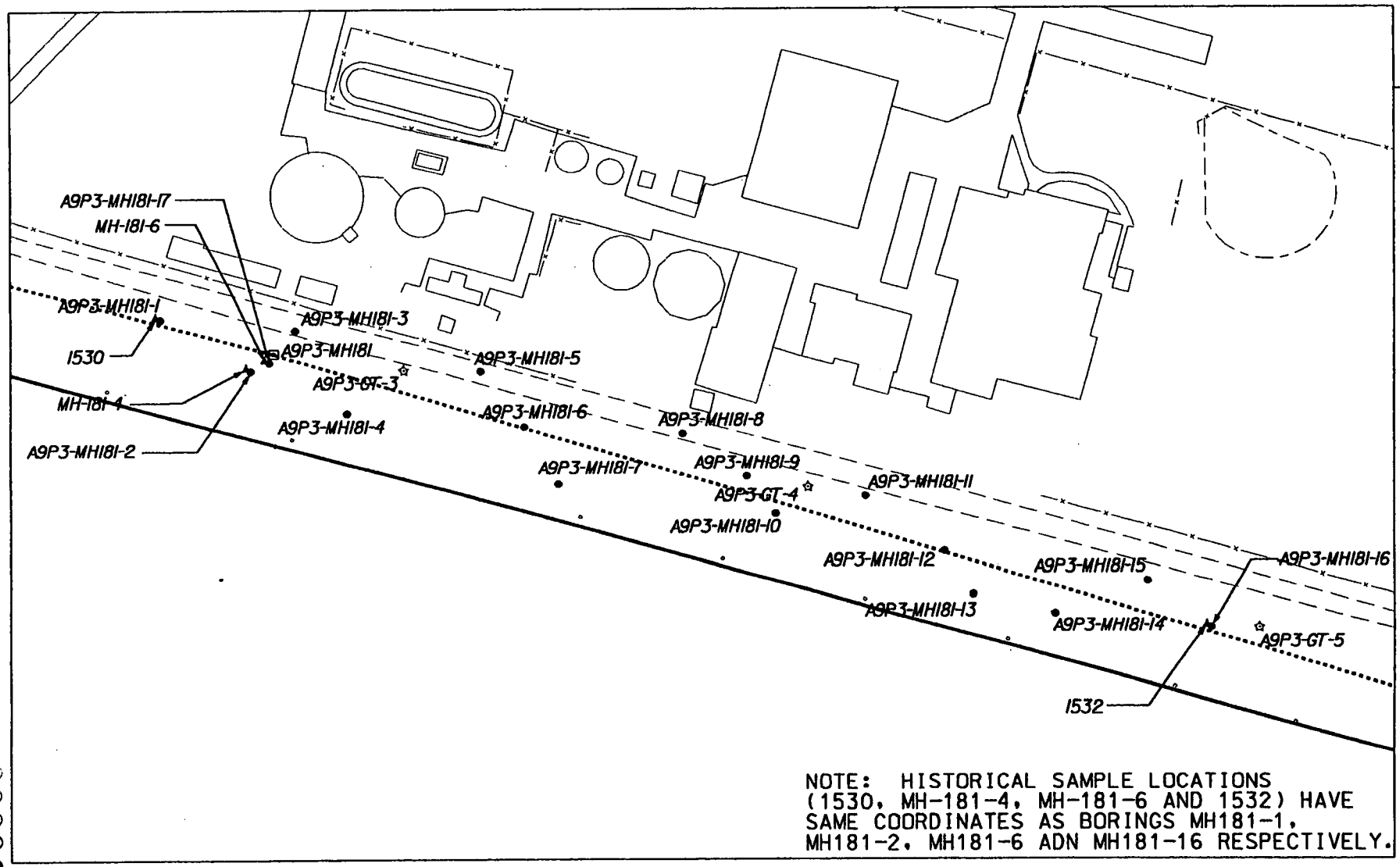


FIGURE 2-3. PREDESIGN SAMPLE LOCATIONS FOR MH 180 AREA



NOTE: HISTORICAL SAMPLE LOCATIONS (1530, MH-181-4, MH-181-6 AND 1532) HAVE SAME COORDINATES AS BORINGS MH181-1, MH181-2, MH181-6 ADN MH181-16 RESPECTIVELY.

LEGEND:

- • BORING LOCATION
- ▫ MANHOLE
- ▲ HISTORICAL ABOVE-FRL BORING
- ····· OLD OUTFALL LINE
- ——— NEW OUTFALL LINE

SCALE

100 50 0 100 FEET

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FIGURE 2-4. PREDESIGN SAMPLE LOCATIONS FOR THE MH 181 AREA

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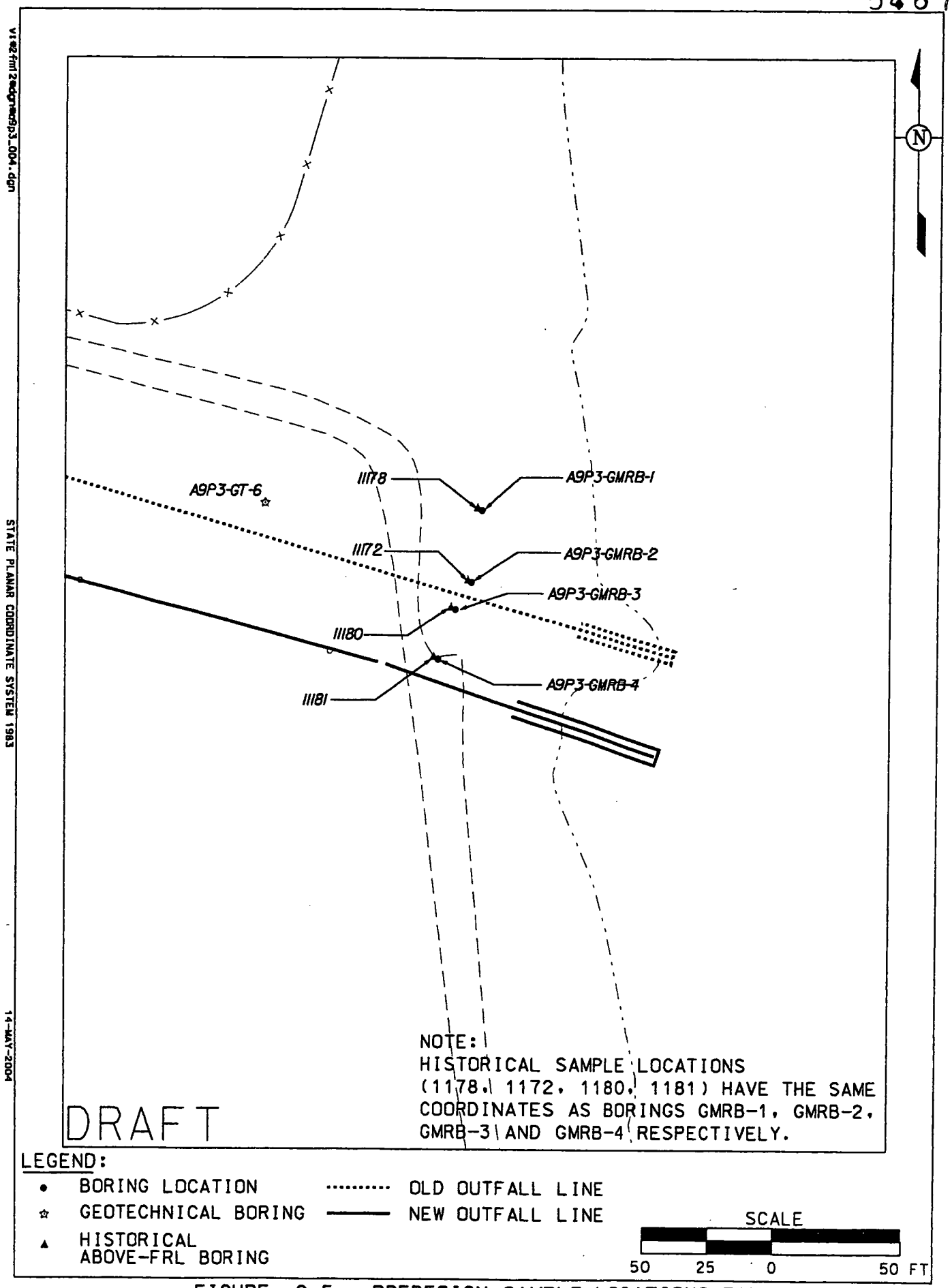

FIGURE 2-5. PREDESIGN SAMPLE LOCATIONS FOR THE GREAT MIAMI RIVER BANK AREA

3.0 INSTRUMENTATION AND TECHNIQUES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

3.1 MEASUREMENT INSTRUMENTATION AND TECHNIQUES

3.1.1 Real-time

3.1.1.1 Sodium Iodide Data Acquisition (RTRAK, RSS, GATOR, EMS)

3.1.1.2 HPGe Data Acquisition

3.1.1.3 Excavation Monitoring System

3.1.1.4 Radon Monitor

3.1.2 Surface Moisture Measurements

3.2 REAL-TIME MEASUREMENT IDENTIFICATION

3.3 REAL-TIME DATA MAPPING

3.4 REAL-TIME SURVEYING

4.0 PREDESIGN

4.1 REAL-TIME ACTIVITIES

Since samples collected for this activity are for confirmation purposes only, Real-Time activities are not necessary at this time.

4.2 SAMPLE COLLECTION METHODS

Refer to Section 4.2 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

4.3 PHYSICAL SAMPLE IDENTIFICATION

Refer to Section 4.3 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for general physical sample identification guidelines. A detailed description for identifying physical samples specific to Area 9 Phase III is given below. Each soil predesign sample will be assigned a unique sample identification number as *A9P3-SpecificArea-Location^Depth-Analysis-QC*, where:

A9P3:	Sample collected from Predesign A9P3
Specific Area:	MH177 = Manhole-177 MH178 = Manhole-178 MH179 = Manhole-179 MH180 = Manhole-180 MH181 = Manhole-181 GMRB = Great Miami River Bank GT = Geotechnical
Location Designator:	The Location Designator is a sequential boring number (e.g., 1, 2, etc) that follows the area designator (e.g., A9P3-MH177-1).
Λ:	The ^ is placed between the location designator and the depth interval. When used, the information to the left of this symbol identifies the boring number and allows the automatic assignment of the boring identification number to be transferred to the appropriate field/table in the Sitewide Environmental Database (SED). The ^ is not used if the sample does not have coordinates such as trip blanks, a "-" is used instead.

Depth Interval Designator: This number indicates the depth interval of the sample from the soil surface. For example, "1" = 0 to 6-inch interval (where the depth interval indicator equals two times the bottom depth for the respective interval and is measured in feet, i.e., "1" = 2 x 0.5', "2" = 2 x 1.0', "3" = 2 x 1.5', etc.).

Additionally, two samples may be collected from the bottom of the manholes. S = sediment, W = water

Analysis Type: R = radionuclides, G = geotechnical

Appendix A contains the Physical Sample Identifications and Coordinates for the Predesign Sampling of A9PIII. Using the above guidelines, the sample A9P3-MH177-1^3-R is interpreted as sample #1 in the area of Manhole-177 in A9PIII taken at a bottom-depth of 1.5 feet, which will be analyzed for radionuclides, and the sample A9P3-MH180^1W-R is interpreted as a water sample collected from Manhole-180 in A9PIII, which will be analyzed for radionuclides.

4.4 BOREHOLE ABANDONMENT

Refer to Section 4.4 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

5.0 EXCAVATION CONTROL MEASURES

Not Applicable

6.0 PRECERTIFICATION

Per Section 4.1 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, predesign measurements may be used as precertification data depending on the measurement results (i.e. if no activity is above the action limits).

7.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

7.1 QUALITY CONTROL SAMPLES - REAL-TIME MEASUREMENTS AND PHYSICAL SAMPLES

7.2 DATA VALIDATION

7.2.1 Physical Sample Data Validation

In addition to the requirements documented in Section 7.2.1 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, 90 percent of the predesign analytical data shall be validated to validation support level (VSL) B. The remaining 10 percent of the predesign analytical data shall be validated to VSL D.

7.2.2 Real-Time Data Verification/Validation

7.3 APPLICABLE DOCUMENTS, METHODS AND STANDARDS

7.4 SURVEILLANCES

7.5 IMPLEMENTATION AND DOCUMENTATION OF VARIANCE/ FIELD CHANGE NOTICES (V/FCN)

8.0 SAFETY AND HEALTH

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section. The only exception to the requirements specified in Section 8.0 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, is that all off-site emergencies shall be reported immediately by using the local 911 system to get emergency assistance. As time permits, project management, AEDO and project safety should be contacted as to what event occurred and actions taken and reporting.

9.0 EQUIPMENT DECONTAMINATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

10.0 DISPOSITION OF WASTES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

11.0 DATA AND RECORDS MANAGEMENT

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

11.1 REAL-TIME

11.2 PHYSICAL SAMPLES

In addition to the requirements listed in Section 11.2 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, the results of the geotechnical sampling will not be entered into the SED.

APPENDIX A

TARGET ANALYTE LISTS FOR PREDESIGN

APPENDIX A
TARGET ANALYTE LISTS FOR PREDESIGN

TAL A

Analyte	FRL	MDL (soil)	MDL (water)
Cesium-137	0.82 pCi/g	0.082 pCi/g	2,100 pCi/L
Radium-226	1.5 pCi/g	0.15 pCi/g	2,550 pCi/L
Radium-228	1.4 pCi/g	0.14 pCi/g	2,700 pCi/L
Technetium-99	1.0 pCi/g	0.50 pCi/g	45,000 pCi/L
Thorium-228	1.5 pCi/g	0.15 pCi/g	2,550 pCi/L
Thorium-232	1.4 pCi/g	0.14 pCi/g	2,550 pCi/L
Total Uranium	50 mg/kg	5.0 mg/kg	3 mg/L

TAL B

Analyte	FRL	MDL (soil)	MDL (water)
Thorium-232	1.4 pCi/g	0.14 pCi/g	2,550 pCi/L

TAL C

Analyte	FRL	MDL (soil)	MDL (water)
Thorium-228	1.5 pCi/g	0.15 pCi/g	2,550 pCi/L

TAL D

Analyte	FRL	MDL (soil)	MDL (water)
Cesium-137	0.82 pCi/g	0.082 pCi/g	2,100 pCi/L

TAL E

Analyte	FRL	MDL* (soil)	MDL (water)
Technetium-99	1.0 pCi/g	0.50 pCi/g	45,000 pCi/L

TAL F

Analyte	FRL	MDL (soil)	MDL (water)
Thorium-232	1.4 pCi/g	0.14 pCi/g	2,550 pCi/L
Total Uranium	50 mg/kg	5.0 mg/kg	3 mg/L

TAL G

Analyte	FRL	MDL (soil)	MDL (water)
Total Uranium	50 mg/kg	5.0 mg/kg	3 mg/L

TAL H

Analyte
Particle Size

TAL I

Analyte
Moisture Content of Soil and Rock

TAL J

Analyte
Liquid Limit
Plastic Limit
Plasticity Index

TAL K

Analyte
Total Organic Content

0027

* Laboratory is unable to achieve 10% of the FRL.

APPENDIX B

BORING TABLE AND SAMPLE IDENTIFIERS FOR PREDESIGN

APPENDIX B
BORING TABLE AND SAMPLE IDENTIFIERS

Boring ID	Northing	Easting	Depth Identifier	Depth Interval	Grab or Composite	Matrix	Sample ID	TAL
A9P3-GT-1	479096	1353854	12	4-6	Grab	Soil	A9P3-GT-1^12-G	H, I, J, K
			16	6-8	Grab	Soil	A9P3-GT-1^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-1^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-1^24-G	H, I, J
A9P3-GT-2	478992	1354239	12	4-6	Grab	Soil	A9P3-GT-2^12-G	H, I, J, K
			16	6-8	Grab	Soil	A9P3-GT-2^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-2^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-2^24-G	H, I, J
A9P3-GT-3	478913	1354529	12	4-6	Grab	Soil	A9P3-GT-3^12-G	H, I, J
			16	6-8	Grab	Soil	A9P3-GT-3^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-3^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-3^24-G	H, I, J
A9P3-GT-4	478834	1354801	12	4-6	Grab	Soil	A9P3-GT-4^12-G	H, I, J
			16	6-8	Grab	Soil	A9P3-GT-4^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-4^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-4^24-G	H, I, J
A9P3-GT-5	478741	1355104	12	4-6	Grab	Soil	A9P3-GT-5^12-G	H, I, J
			16	6-8	Grab	Soil	A9P3-GT-5^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-5^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-5^24-G	H, I, J
			28	12-14	Grab	Soil	A9P3-GT-5^28-G	H, I, J
A9P3-GT-6	478656	1355392	12	4-6	Grab	Soil	A9P3-GT-6^12-G	H, I, J, K
			16	6-8	Grab	Soil	A9P3-GT-6^16-G	H, I, J
			20	8-10	Grab	Soil	A9P3-GT-6^20-G	H, I, J
			24	10-12	Grab	Soil	A9P3-GT-6^24-G	H, I, J
			28	12-14	Grab	Soil	A9P3-GT-6^28-G	H, I, J
A9P3-MH177	1352020.16	479473.86	NA	NA	Grab	Water	A9P3-MH177^1W-R	E,F
						Sediment	A9P3-MH177^1S-R	A
A9P3-MH177-1	1351978.41	479468.62	1	0 - 0.5	Grab	Soil	A9P3-MH177-1^1-R	A
A9P3-MH177-2	1352019.74	479443.64	1	0 - 0.5	Grab	Soil	A9P3-MH177-2^1-R	A
			2	0.5 - 1			A9P3-MH177-2^2-R	B
A9P3-MH177-3	1352090.18	479462.82	1	0 - 0.5	Grab	Soil	A9P3-MH177-3^1-R	A
A9P3-MH177-4	1352150.36	479471.54	1	0 - 0.5	Grab	Soil	A9P3-MH177-4^1-R	A
A9P3-MH178	1352276.32	479436.00	NA	NA	Grab	Water	A9P3-MH178^1W-R	E,F
						Sediment	A9P3-MH178^1S-R	A
A9P3-MH178-1	1352199.84	479418.10	1	0 - 0.5	Grab	Soil	A9P3-MH178-1^1-R	A
A9P3-MH178-2	1352285.90	479437.67	1	0 - 0.5	Grab	Soil	A9P3-MH178-2^1-R	A
A9P3-MH178-3	1352338.15	479402.71	1	0 - 0.5	Grab	Soil	A9P3-MH178-3^1-R	A
A9P3-MH178-4	1352402.24	479425.89	1	0 - 0.5	Grab	Soil	A9P3-MH178-4^1-R	A
A9P3-MH178-5	1352457.46	479374.59	1	0 - 0.5	Grab	Soil	A9P3-MH178-5^1-R	A
A9P3-MH178-6	1352514.42	479417.62	1	0 - 0.5	Grab	Soil	A9P3-MH178-6^1-R	A
A9P3-MH178-7	1352566.80	479382.46	1	0 - 0.5	Grab	Soil	A9P3-MH178-7^1-R	A
A9P3-MH179	1352798.30	478356.59	NA	NA	Grab	Water	A9P3-MH179^1W-R	E,F
						Sediment	A9P3-MH179^1S-R	A
A9P3-MH179-1	1352629.42	479384.02	1	0 - 0.5	Grab	Soil	A9P3-MH179-1^1-R	A
A9P3-MH179-2	1352646.29	479344.37	1	0 - 0.5	Grab	Soil	A9P3-MH179-2^1-R	A
A9P3-MH179-3	1352712.88	479372.23	1	0 - 0.5	Grab	Soil	A9P3-MH179-3^1-R	A
A9P3-MH179-4	1352775.50	479333.16	1	0 - 0.5	Grab	Soil	A9P3-MH179-4^1-R	A
A9P3-MH179-5	1352830.31	479357.01	1	0 - 0.5	Grab	Soil	A9P3-MH179-5^1-R	A

APPENDIX B
BORING TABLE AND SAMPLE IDENTIFIERS

Boring ID	Northing	Easting	Depth Identifier	Depth Interval	Grab or Composite	Matrix	Sample ID	TAL
A9P3-MH180	1353070.21	479291.07	NA	NA	Grab	Water	A9P3-MH180^1W-R	E,F
						Sediment	A9P3-MH180^1S-R	A
A9P3-MH180-1	1353062.00	479258.60	3	0 - 1.5	Composite*	Soil	A9P3-MH180-1^3-R	A
A9P3-MH180-2	1353101.50	479288.13	3	0 - 1.5	Composite*	Soil	A9P3-MH180-2^3-R	A
A9P3-MH180-3	1353070.98	479227.71	3	0 - 1.5	Composite*	Soil	A9P3-MH180-3^3-R	A
A9P3-MH180-4	1353104.33	479222.77	3	0 - 1.5	Composite*	Soil	A9P3-MH180-4^3-R	A
A9P3-MH180-5	1353139.84	479295.04	3	0 - 1.5	Composite*	Soil	A9P3-MH180-5^3-R	A
A9P3-MH180-6	1353179.10	479304.40	3	0 - 1.5	Composite*	Soil	A9P3-MH180-6^3-R	A
A9P3-MH180-7	1353135.33	479241.60	3	0 - 1.5	Composite*	Soil	A9P3-MH180-7^3-R	A
A9P3-MH180-8	1353166.22	479232.62	3	0 - 1.5	Composite*	Soil	A9P3-MH180-8^3-R	A
A9P3-MH180-9	1353059.48	479148.05	3	0 - 1.5	Composite*	Soil	A9P3-MH180-9^3-R	A
A9P3-MH180-10	1353099.14	479182.40	3	0 - 1.5	Composite*	Soil	A9P3-MH180-10^3-R	A
A9P3-MH180-11	1353067.61	479110.41	3	0 - 1.5	Composite*	Soil	A9P3-MH180-11^3-R	A
A9P3-MH180-12	1353091.86	479068.11	3	0 - 1.5	Composite*	Soil	A9P3-MH180-12^3-R	A
A9P3-MH180-13	1353134.93	479172.14	3	0 - 1.5	Composite*	Soil	A9P3-MH180-13^3-R	A
A9P3-MH180-14	1353166.80	479149.92	3	0 - 1.5	Composite*	Soil	A9P3-MH180-14^3-R	A
A9P3-MH180-15	1353125.34	479117.79	3	0 - 1.5	Composite*	Soil	A9P3-MH180-15^3-R	A
A9P3-MH180-16	1353168.69	479099.52	3	0 - 1.5	Composite*	Soil	A9P3-MH180-16^3-R	A
A9P3-MH180-17	1353269.46	479300.96	1	0 - 0.5	Grab	Soil	A9P3-MH180-17^1-R	C
A9P3-MH180-18	1353146.48	479067.55	3	0 - 1.5	Composite*	Soil	A9P3-MH180-18^3-R	A
A9P3-MH181	1354442.34	478924.16	NA	NA	Grab	Water	A9P3-MH180^1W-R	E,F
						Sediment	A9P3-MH180^1S-R	A
A9P3-MH181-1	1354366.06	478947.03	1	0 - 0.5	Grab	Soil	A9P3-MH181-1^1-R	A
			14	6.5 - 7	Grab	Soil	A9P3-MH181-1^14-R	D
A9P3-MH181-2	1354425.76	478912.61	1	0 - 0.5	Grab	Soil	A9P3-MH181-2^1-R	A
			2	0.5 - 1	Grab	Soil	A9P3-MH181-2^2-R	E
A9P3-MH181-3	1354455.23	478939.53	1	0 - 0.5	Grab	Soil	A9P3-MH181-3^1-R	A
A9P3-MH181-4	1354489.82	478884.39	1	0 - 0.5	Grab	Soil	A9P3-MH181-4^1-R	A
A9P3-MH181-5	1354578.80	478912.06	1	0 - 0.5	Grab	Soil	A9P3-MH181-5^1-R	A
A9P3-MH181-6	1354608.30	478875.20	1	0 - 0.5	Grab	Soil	A9P3-MH181-6^1-R	A
A9P3-MH181-7	1354631.04	478836.15	1	0 - 0.5	Grab	Soil	A9P3-MH181-7^1-R	A
A9P3-MH181-8	1354715.14	478870.43	1	0 - 0.5	Grab	Soil	A9P3-MH181-8^1-R	A
A9P3-MH181-9	1354758.33	478841.41	1	0 - 0.5	Grab	Soil	A9P3-MH181-9^1-R	A
A9P3-MH181-10	1354777.83	478816.16	1	0 - 0.5	Grab	Soil	A9P3-MH181-10^1-R	A
A9P3-MH181-11	1354838.31	478827.82	1	0 - 0.5	Grab	Soil	A9P3-MH181-11^1-R	A
A9P3-MH181-12	1354891.64	478791.40	1	0 - 0.5	Grab	Soil	A9P3-MH181-12^1-R	A
A9P3-MH181-13	1354910.91	478763.04	1	0 - 0.5	Grab	Soil	A9P3-MH181-13^1-R	A
A9P3-MH181-14	1354965.83	478750.39	1	0 - 0.5	Grab	Soil	A9P3-MH181-14^1-R	A
A9P3-MH181-15	1355027.63	478771.90	1	0 - 0.5	Grab	Soil	A9P3-MH181-15^1-R	A
A9P3-MH181-16	1355070.42	478741.03	1	0 - 0.5	Grab	Soil	A9P3-MH181-16^1-R	A
			24	11.5 - 12	Grab	Soil	A9P3-MH181-16^24-R	D
A9P3-MH181-17	1354438.02	478918.11	1	0 - 0.5	Grab	Soil	A9P3-MH181-17^1-R	E

APPENDIX B
BORING TABLE AND SAMPLE IDENTIFIERS

Boring ID	Northing	Easting	Depth Identifier	Depth Interval	Grab or Composite	Matrix	Sample ID	TAL
A9P3-GMRB-1	1355474.83	478653.34	1	0 - 0.5	Grab	Soil	A9P3-GMRB-1^1-R	A
			3	1 - 1.5	Grab	Soil	A9P3-GMRB-1^3-R	F
			6	2.5 - 3	Grab	Soil	A9P3-GMRB-1^6-R	F
A9P3-GMRB-2	1355471.02	478625.40	1	0 - 0.5	Grab	Soil	A9P3-GMRB-2^1-R	A
			3	1 - 1.5	Grab	Soil	A9P3-GMRB-2^3-R	B
			6	2.5 - 3	Grab	Soil	A9P3-GMRB-2^6-R	B
			9	4 - 4.5	Grab	Soil	A9P3-GMRB-2^9-R	B
			12	5.5 - 6	Grab	Soil	A9P3-GMRB-2^12-R	B
			15	7 - 7.5	Grab	Soil	A9P3-GMRB-2^15-R	B
			18	8.5 - 9	Grab	Soil	A9P3-GMRB-2^18-R	B
			21	10 - 10.5	Grab	Soil	A9P3-GMRB-2^21-R	B
			24	11.5 - 12	Grab	Soil	A9P3-GMRB-2^24-R	B
			26	12.5 - 13	Grab	Soil	A9P3-GMRB-2^26-R	B
A9P3-GMRB-3	1355464.82	478614.88	1	0 - 0.5	Grab	Soil	A9P3-GMRB-3^1-R	A
			26	12.5 - 13	Grab	Soil	A9P3-GMRB-3^26-R	B
A9P3-GMRB-4	1355458.31	478595.66	1	0 - 0.5	Grab	Soil	A9P3-GMRB-4^1-R	A
			3	1 - 1.5	Grab	Soil	A9P3-GMRB-4^3-R	G

* The top 1.5 feet of soil shall be collected in a sampling tube. The ends of the tube shall be capped and the 1.5 foot core shall be sent to the designated off-site lab. The off-site lab shall composite and analyze the sample.