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**Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
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Chicago, Illinois 60604-3590**

**Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
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Dayton, Ohio 45402-2911**

Dear Mr. Saric and Mr. Schneider:

PADDYS RUN EMBANKMENT STABILIZATION, PHASE II: TRANSMITTAL OF WORK PLAN AND CONCEPTUAL DESIGN

Reference: Letter, Reising to Saric and Schneider, "Notification to Perform Remedial Actions in Paddys Run Stream to Address Recent Erosion Conditions," dated September 26, 1997.

As a follow-up to our discussions during the month of October 1997, this letter transmits for your review both the work plan and the conceptual design for stabilizing the east stream bank of Paddys Run near Silos 1 and 2. It was agreed with the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) that the implementation of the engineering controls could proceed, upon review of the enclosed documents, without excavating to the Final Remediation Levels. In addition, sampling and analysis of the collapsed soil in Paddys Run indicates that there are no constituents at concentrations above the on-site waste acceptance criteria.

The selected engineering control for stabilizing the east stream bank is the installation of riprap. As part of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial action, this installation is exempt from the requirement to obtain administrative permit approval pursuant to Section 121(e) of CERCLA and 40 CFR 300.

To ensure the east stream bank is stabilized from further erosion and to meet the December 22, 1997, construction start date, the Department of Energy (DOE) is requesting an accelerated review period. This will allow for construction planning documents and procurement of materials to take place prior to the construction mobilization and the late winter wet season.

Should you have any questions or require additional information, please contact Robert Janke at (513) 648-3124.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Nickel

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**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

**PADDYS RUN EMBANKMENT STABILIZATION
WORK PLAN**



DECEMBER 1997

**U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE**

**20540-WP-0001
REVISION C
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ACRONYMS AND ABBREVIATIONS

A/E	Architect/Engineer
ACOE	U.S. Army Corp of Engineers
ALARA	as low as reasonably achievable
APM	Area Project Manager
ARARs	applicable or relevant and appropriate requirements
ASCOC	Area-Specific Constituent of Concern
CC	Construction Coordinator
CCM	Construction Contract Manager
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CM	Construction Manager
CSC	Construction Support Contractor
dBA	decibels, A scale
DCN	design change notice
DOE	U.S. Department of Energy
ECC	Emergency Communications Center
ECDC	Engineering/Construction Document Control
EPA	U.S. Environmental Protection Agency
FDF	Fluor Daniel Fernald, Inc.
FEMP	Fernald Environmental Management Project
FRLs	final remediation levels
HEA	Habitat Equivalency Analysis
HPGe	high-purity germanium detector
NRIMP	Natural Resource Impact Monitoring Plan
NRRP	Natural Resource Restoration Plan
NSS	Nuclear and System Safety
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU	Operable Unit
PE	Project Engineer
PSP	Project Specific Plan
PWID	Project Waste Identification and Disposition
QA	quality assurance
QA/QC	quality assurance/quality control
QAJSP	Quality Assurance Job-Specific Plan
RCI	Request for Clarification of Information
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation/feasibility study
S&H	Safety and Health
SCEP	Soil Characterization and Excavation Project
SCQ	Sitewide CERCLA Quality Assurance Plan
SEP	Sitewide Excavation Plan
TBC	to be considered
WAC	waste acceptance criteria

1.0 INTRODUCTION

This section provides the background and scope for the Paddys Run Embankment Stabilization Project. Many of the initial activities listed below were completed under Phase I of the project. This work plan contains the remaining Phase I items to be completed under Phase II, along with a description of Phase II activities. The design for embankment stabilization involves riprap installation and is discussed in the "Conceptual Design for Paddys Run Streambank Stabilization" (Brown & Root 1997). Additionally, the data summary report for Phase I sampling is provided as Appendix A. This work plan does not address any Phase III activities.

1.1 BACKGROUND

The Paddys Run stream eroded a portion of its eastern bank at the Fernald Environmental Management Project (FEMP) within Soil Remediation Area 7, and west of Silos 1 and 2 (see Figure 1-1). Erosion of the stream bank resulted in a 30-foot high near-vertical slope and approximately 1700 cubic feet of soil, trees, and metal debris recently collapsing into the stream bed. To prevent further erosion that would compromise the integrity of the west Silos perimeter road, the FEMP Soil Characterization and Excavation Project (SCEP) mobilized on September 8, 1997 to begin activities to support the stabilization of the eastern stream bank.

1.1.1 Description of Work Phases

Both the Ohio and United States Environmental Protection Agencies (OEPA and EPA, respectively) were verbally notified by the Department of Energy (DOE) on September 9, 1997. As a follow-up to the verbal notification, DOE formally submitted a letter (DOE-1440-97) dated September 26, 1997, to both OEPA and EPA providing background to the situation and outlining Phase I (near-term), Phase II (short-term) and Phase III (long-term) tasks necessary to address erosion and contamination concerns.

The following near-term tasks were outlined as Phase I of the project:

- Task 1: Notify OEPA and EPA
- Task 2: Post signs to restrict heavy equipment in the immediate area east of the fence, i.e., restrict access to the west Silos perimeter road. Also, conduct a topographic survey of the collapsed soil area and perform a Phase I archaeological survey of the land west to Paddys Run Road

- Task 3: Remove downed trees and associated root mat and root soil in the Paddys Run channel 1
- Task 4: Remove the metal debris (i.e., metal rebar, metal channel, and a 4' x 10' metal lid) in the channel 2
- Task 5: Remove a tall tree at the top of the east stream bank in danger of falling 3
- Task 6: Conduct radiological surveys and sample soil in the area of soil collapse, debris locations, and downed trees 4
- Task 7: Implement weekly inspections of the Paddys Run collapsed soil area. 5

In parallel to the above tasks, the conceptual design (Brown & Root 1997) and this work plan to address Phase II tasks were being developed for review and approval by OEPA and EPA. The following short-term tasks were outlined as Phase II of the Project: 6

- Task 8: Construct appropriate short-term protective measures to protect the eastern bank from further erosion and reroute Paddys Run flow to the west within the existing channel 7
- Task 9: Excavate and remove contaminated soil (if necessary) in the channel 8

Phase III of the project consists of potential long-term measures to be taken by the Silos Project to support Silos 1 and 2 remediation. Although not within the scope of this work plan, the following long-term task was outlined as Phase III: 9

- Task 10: Design and construct appropriate long-term protective measures to protect the eastern bank from further erosion and provide structural support for future construction activities in the silo area. 10

1.1.2 Work Completed and in Progress 11

The Phase I tasks were completed prior to October 9, 1997, with one exception. Task 5 was delayed to Phase II, because cutting the tree might have resulted in disturbance of the previous fallen tree's root mat (Task 3), which was radiologically contaminated. 12

Radiological Control Technicians detected radiological contamination of greater than 100 corrected counts per minute above background associated with the soil within the fallen tree's root mat and 35 cubic yards of soil was subsequently removed. 13

The contamination associated with the 4' x 10' metal lid was fixed. Subsequently the metal lid was removed and managed at an existing debris pile within the Former Production Area. Details and field screening data results are provided in the Paddys Run Data Summary Report, Appendix A.

The fallen trees were cut and moved to a brush pile established downstream. A lysimeter within the fallen trees was removed and discarded.

1.1.3 Summary of Analytical Results

DOE, EPA, and OEPA agreed that implementation of the engineering design could proceed without the requirement to meet final remediation levels (FRLs). The rationale was as follows:

- Upstream drainage areas within the FEMP have not yet been excavated and certified to meet FRLs. Therefore, it is unlikely that this portion of the Paddys Run east embankment area and stream bed could maintain its certification.
- In order to meet FRLs, the potential need to excavate areas of the east embankment area may impact the remediation plans for using the west perimeter road of Silos 1 and 2.

Therefore, soil sampling did not focus on determining concentrations above FRLs. This area is intended to be remediated in Area 7 Actions.

Above-Waste Criteria Acceptance (WAC) sampling occurred to determine the appropriate management of soils for final disposition, i.e., OU1 above-WAC stockpile or existing soil stockpile for future disposition in the On-Site Disposal Facility (OSDF).

Analytical laboratory results of the soil samples taken during Phase I of the Paddys Run Embankment Stabilization Project indicated that all materials excavated from Paddys Run met the on-site WAC for technetium-99 and total uranium. There is no on-site WAC for radium-226 or thorium-232, and therefore, comparative sample analyses was needed for WAC attainment. In addition, the collapsed soil does not exhibit RCRA toxicity characteristic levels for lead or chromium. Appendix A describes in detail the sampling and analysis program, field screening process, and analytical results of physical sampling for the Paddys Run Embankment Stabilization Project.

Thorium-232 was not detected above the FRL of 1.5 pCi/g using the high-purity germanium detector (HPGe) after excavation in the vicinity of the root mat. Laboratory analyses for total uranium, technetium-99, chromium, and lead indicated concentrations below their respective FRLs, as shown on Table 4 of Appendix A. Radium-226 was detected below the FRL of 1.7 pCi/g in Segment 2 after excavation of the 35 cubic yards of root mat soil and adjacent soil. Sample Location 23, which was positioned beneath the location of the metal lid, showed the highest concentration of total uranium at 19.3 ppm.

1.2 SCOPE

Design and construction scopes of Phase II work involves removing soil for riprap installation and subsequent riprap placement.

1.2.1 Design

The design focuses on protecting the east bank of Paddys Run from further stream erosion. The design is discussed in detail in the Conceptual Design Report (Brown & Root 1997). A riprap barrier will be installed to protect the east bank of Paddys Run. Additionally, a vegetative barrier will be established downstream from the riprap installation to protect the west bank of Paddys Run (see Figure 1-4, Project Location Map).

1.2.2 Construction

The scope of construction will be to implement the design and record the final limits of riprap installation. This vegetative barrier that is to be established is discussed in Section 2.2.

1.3 REGULATORY DRIVERS

The following sections describe applicable regulatory drivers for the project, including Natural Resource Trusteeship commitments. Environmental monitoring and control requirements are also discussed as they apply to this project. Cultural resource survey work was completed during Phase I of this project; the results are summarized in Section 1.3.4.

1.3.1 ARARs and Substantive Permitting Requirements

As part of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action, pursuant to Section 121(e) of CERCLA and 40 CFR 300.400(e), the Paddys Run Embankment Stabilization Project is exempt from obtaining administrative permit approval. Project-specific Applicable or Relevant and Appropriate Requirements (ARARs), To-Be-Considered criteria (TBCs), and permits/notifications that would have been required in absence of the CERCLA Section 121(e) permit exemption described above are based upon review of the ARARs and TBCs listed in the Sitewide Excavation Plan (SEP; DOE 1997a). Substantive requirements and the manner in which they will be addressed are presented in Table 1-1, Paddys Run Embankment Stabilization Project Substantive Permitting Cross-walk.

1.3.2 Project-Specific Environmental Controls and Monitoring

This work plan will comply with Section 5.0 of the SEP (DOE 1997a) which defines the general approach for implementing project-specific environmental controls and for conducting project-specific monitoring during remediation of impacted soils at the Fernald site. Environmental control mechanisms and monitoring requirements are provided therein by pathway for air, surface water, and groundwater. As a subset of the overall soil remediation efforts occurring at the FEMP, this project will be subject to applicable provisions of these overall environmental control and monitoring requirements. Table 1-2, Paddys Run Embankment Stabilization Project Monitoring Summary, summarizes the manner in which environmental control and monitoring requirements will be addressed for each pathway.

1.3.3 Natural Resource Trusteeship

Some clearing will be necessary to allow equipment access to the stream bed from the west. Additional clearing of smaller growth within the stream bed is also required. All cleared vegetation will be relocated to the existing brush pile established during Phase I activities. Should additional storage volume be warranted, an alternate brush pile location has been established in the southernmost portion of the lower pasture adjacent to the project area see (Figure 1-4, Project Location Map). Every effort will be made during the installation of the barriers to preserve the mature stand of trees west of the stream. These trees will continue to support west bank stabilization.

Beyond seeding and mulching areas in the upper and lower pasture disturbed during this action, no additional measures will be taken to re-establish new growth vegetation in this area. If additional trees were to be installed, they may have to be removed to facilitate future remediation in Area 7 or Area 8. The proposed Natural Resource Restoration Plan (NRRP; DOE 1997c) addresses final restoration of this portion of Paddys Run Stream and adjacent areas after soil certification has been completed under Area 7 and Area 8.

Ecological impact to the stream bed of Paddys Run as a result of these Phase II actions is expected to be minimal. Whenever possible, work will be done during periods when there is little or no flow in the stream. There is no unique habitat nor are there any concerns with threatened or endangered species in the area of these Phase II actions.

Disturbance of this portion of Paddys Run was anticipated in the Natural Resource Impact Assessment due to the likelihood of contaminated soil in this area. However, impact to this part of Paddys Run has been accelerated to the present as the result of natural erosion and the resultant east stream bank collapse. The Habitat Equivalency Analysis (HEA) attached to the NRRP (DOE 1997c) considers the natural resource impacts identified in the Natural Resource Impact Assessment and establishes the amount of natural resource restoration required to compensate for those impacts. The HEA will be revised to reflect these changed conditions. Subsequently, compensation for the disturbance of this area will be addressed within the proposed NRRP (DOE 1997c), which is currently being developed in consultation with the Fernald Natural Resource Trustees. The disturbance of this area will also be identified and reported as part of the monitoring carried out under the Natural Resource Impact Monitoring Plan (NRIMP; Appendix D of the IEMP).

1.3.4 Cultural Resources

A cultural resources survey was performed on the 6-acre parcel in the lower pasture and an associated access road crossing the upper pasture for the Embankment Stabilization Project. Prehistoric cultural materials were recovered from three previously undocumented archaeological sites in the 6-acre parcel. No cultural resources were encountered in the associated access road. The sites discovered do not meet the four criteria outlined by the Advisory Council on Historic Preservation for inclusion in the National Registry of Historic Places. No further cultural resources work at these specific sites is required.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK**

Condition	Substantive Requirement	Compliance Plan
Nationwide Permit 38 - Cleanup of Hazardous and Toxic Waste¹ (Appendix A, 33 CFR Part 330)		
Navigation	No activity may cause more than a minimal effect on navigation.	The proposed activity will have no impact on navigation. Paddys Run is a small intermittent stream not normally used for navigation, either in commerce or recreation. Impacts associated with the project will be temporary in nature and will be limited to periods when work is actually being conducted within the stream channel. No permanent obstructions or impediments to flow will be installed as part of the project. Any temporary structures or fills placed below the ordinary high water mark of the stream will be removed prior to completion of work.
Proper Maintenance	Any structure or fill authorized shall be maintained to ensure public safety.	Public access to the project area is restricted by the site perimeter fence. The project area will be staffed and inspected on a daily basis while work is being conducted to ensure workers and the public are protected. Bank stabilization structures placed within the stream channel will be periodically inspected and maintained as required after completion of construction activities.
Erosion and Siltation Controls	Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.	Heavy equipment will be limited to the immediate project vicinity to avoid and minimize re-suspension of material within the stream channel. Due to the intermittent nature of Paddys Run, work within the channel will be limited to periods when minimal flow exists. Silt fence and/or other appropriate methods of sedimentation and erosion control will be used as necessary to minimize potential erosion and sediment transport. Disturbed soils will be stabilized after completion of construction activities, as appropriate.
Aquatic Life Movement	No activity may substantially disrupt the movement of those species of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.	Paddys Run is a small intermittent stream. No disruption in the movement of aquatic species is anticipated as a result of the project. Any temporary fills or structures placed below the ordinary high water mark of Paddys Run will be removed prior to completion of the project.
Equipment	Heavy equipment working within wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.	Not applicable. The project area is not located within a jurisdictional wetland. Heavy equipment will be limited to the immediate project vicinity to avoid and minimize impacts to the stream bed of Paddys Run.
Regional and Case-by-Case	Activities must comply with any regional or case-by-case conditions added by the Division Engineer.	Not applicable. No regional or case-specific conditions have been added by the U.S. Army Corp of Engineers (ACOE).

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Wild and Scenic Rivers	No activity may occur in a component of the National Wild and Scenic River System.	Not applicable. Paddys Run is not a part of the National Wild and Scenic River System.
Tribal Rights	No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.	Not applicable. No tribal water, fishing, or hunting treaty rights have been granted for Paddys Run.
Water Quality Certification	Section 401 State Water Certification must be obtained or waived.	This project is being implemented under the provisions of NWP 38. Ohio EPA issued its corresponding Section 401 State Water Quality Certification for NWP 38 in January 1992. The citation for this certification and Ohio EPA's implementing regulations for its Section 401 Program (OAC 3745-32) are identified in the OUS ARARs.
Coastal Zone Management	State coastal zone management consistency concurrence must be obtained or waived.	Not applicable. Paddys Run is not regulated under state coastal management regulations or statutes.
Endangered Species	No activity is authorized under any NWP, which is likely to jeopardize the continued existence or modify the critical habitat of a threatened or endangered species or species proposed for such designation.	No known federally-listed threatened or endangered species or critical habitat will be impacted by the project. Surveys for state-listed Sloan's crayfish (<i>Orconectes sloani</i>) were conducted in Paddys Run in 1993-1994. No known individuals of the species were encountered in the immediate project area during these surveys.
Historic Properties	No activity which may affect historic properties listed, eligible of listing, in the National Register of Historic Places in authorized.	No impacts to historic properties are anticipated. The project area was surveyed prior to disturbance in accordance with the Programmatic Agreement Regarding Archaeological Investigations at the Fernald Environmental Management Project (March 6, 1997). Any unanticipated discoveries will be addressed in accordance with that programmatic agreement between DOE, the Ohio Historic Preservation Office, and the Advisory Council on Historic Preservation.
Notification	When required by the terms of a NWP, the permittee must notify the ACOE in accordance these provisions.	Not applicable. ACOE notification is not required for CERCLA remedial actions regulated by EPA. (See NWP 38 terms and conditions, Appendix A to 33 CFR Part 330); confirmed in a October 8, 1997 conference call with representatives from the ACOE-Louisville District Office.
Water Supply Intakes	No discharges of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structure or adjacent bank stabilization.	Not applicable. No public water supply intakes are located on Paddys Run.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Shellfish Production	No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to shellfish harvesting authorized by NWP 4.	Not applicable. Paddys Run is not used for shellfish production.
Suitable Material	No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts.	Fill material placed as part of the project will be comprised of clean rock and existing channel material. To minimize potential sediment transport, work will be limited to periods when minimal flow exists within the channel. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Mitigation	Discharges of dredged or fill material into waters of the United States must be minimized and avoided to the maximum extent practicable at the project site.	Disturbances within the stream bed of Paddys Run will be limited to the immediate project vicinity. Work will be limited to periods when minimal flow exists within the channel. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Spawning Areas	Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.	Work will be limited to periods when minimal flow exists within the channel. No adverse impacts to spawning areas is anticipated. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Obstruction of High Flows	To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).	No restrictions or impediments to normal or expected high flows will result from the proposed project. Based on HEC-2 modeling runs conducted during the project alternative analysis, changes in the pool elevations of the 10-yr, 25-yr, and 100-yr floods will be minimal (< 1 foot).
Adverse Effects from Impoundments	If the discharge creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.	The proposed project will not result in the impoundment of water. No permanent impoundments or flow obstructions will be placed as part of the proposed project.
Waterfowl Breeding Areas	Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.	Not applicable. Paddys Run is a small intermittent stream that is not used extensively by water fowl during the breeding season. Impacts associated with the proposed project will be temporary in nature and will be limited to periods when minimal flow exists within the channel of Paddys Run.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Removal of Temporary Fills	Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing elevation.	Any temporary fills placed as part of the proposed project will be removed prior to completion of construction activities.
Clean Water Act Section 401 State Water Quality Certification² (OAC 3745-32)		
Bank Stabilization	Steps shall be taken, upon completion of the project, to ensure bank stability. This may include, but is not limited to, the placement of riprap or bank seeding.	Disturbed soils associated with the proposed project will be restabilized upon completion of construction activities.
Mitigation	Any damages to the immediate environment of the project by equipment for construction or hauling will be repaired immediately.	The movement of heavy equipment will be limited to the immediate project area. Disturbed soils associated with the proposed project will be restabilized upon completion of construction activities.
Adverse Impacts to Water Quality and Aquatic Life	Care must be employed throughout the course of the project to avoid the creation of unnecessary turbidity which may degrade water quality or adversely affect aquatic life outside of the project area.	The movement of heavy equipment will be limited to the immediate project vicinity and will only occur during periods when minimal flow exists within the channel to avoid and minimize resuspension of material within the water column of Paddys Run. Appropriate erosion and sedimentation controls will also be used to minimize sediment transport.
Notification	The Corps of Engineers shall provide copies of the pre-discharge notifications to both the Ohio EPA and the Ohio Department of Natural Resources pursuant to the notification procedures outlined in Appendix A to 33 CFR Part 330.	Not applicable. ACOE notification is not required for CERCLA response actions regulated by EPA; confirmed in a October 8, 1997 conference call with representatives from the ACOE-Louisville District Office. (See NWP 38 terms and conditions, Appendix A to 33 CFR Part 330). Pre-discharge notification to EPA and OEPA will be conducted by DOE via submission of this plan.

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**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Notification of Floodplain Involvement³ (10 CFR 1022)		
Avoidance and Minimization of Floodplain Impacts	Federal agencies undertaking actions within floodplains must take appropriate steps to avoid and minimize potential floodplain impacts.	Floodplain impacts associated with the OU5 remedial action were previously described in the OU5 Feasibility Study. The proposed project will not cause any short- or long-term impacts to the floodplain of Paddys Run. Based on HEC-2 modeling runs conducted during the project alternative analysis, changes in the pool elevations of the 10-yr, 25-yr, and 100-yr floods will be minimal (< 1 foot). Impacts will be minimized by restricting the movement of heavy equipment to the immediate project area.

¹ See Appendix A to 33 CFR Part 330 and Appendix B of the OU5 ROD (DOE 1995b) for additional detail.

² Ohio EPA granted Section 401 State Water Quality Certification for NWP 38 on January 17, 1992. See OAC 3745-32 and Appendix B of the OU5 ROD for additional details.

³ See OU5 Feasibility Study (DOE 1995a) and Appendix B of the OU5 ROD (DOE 1995b) for additional detail.

**TABLE 1-2
PADDYS RUN EMBANKMENT STABILIZATION PROJECT MONITORING SUMMARY**

Pathway & Component	Project-Specific Control Mechanism	Project-Specific Monitoring	Compliance Plan
Air Pathway			
Noise Control and Abatement	An administrative action level of 85 dBA has been set for the project. It will be used to assess the need for hearing protection for field personnel, the need for maintenance of vehicles and machinery, and the need for additional noise control and abatement measures.	Noise monitoring will be conducted in the field by health and safety personnel to assess whether administrative action levels are exceeded, the need for hearing protection, the need for vehicle/machinery maintenance, and the need for additional control measures.	Project-specific noise monitoring requirements, administrative action levels, and personnel protective equipment requirements will be provided in the project-specific health and safety requirements documents.
Fugitive Dust Emissions	Fugitive dust controls to be established in accordance with requirements of site requirements manual RM-0047 - "Fugitive Dust Control Requirements (Rev. 0, August 1997), developed from the OEPA's fugitive dust control best available technology (BAT) determination. Control mechanisms to consist primarily of water spray on exposed/working soil surfaces.	Visual emission monitoring to be conducted and documented in accordance with requirements specified in RM-0047.	Project-specific dust controls and visual emission monitoring to be conducted and documented in accordance with requirements of RM-0047.
Airborne Radiological Particulates	Fugitive dust controls in accordance with RM-0047 per above.	None required. No point source emissions will be associated with the project. No fugitive radiological particulate emissions are anticipated. Monitoring for visual dust emissions will be conducted in accordance with RM-0047 per above.	Airborne radiological particulate emissions associated with sitewide activities are monitored via the existing sitewide airborne radiological particulate monitoring program presented in the IEMP. Emissions associated with site remediation projects are accounted for in the sitewide dose assessment prepared for the Annual FEMP NESHAP Subpart H report.
Radon	Not applicable. No radon emissions are anticipated to be associated with the proposed project.	None required.	Radon emissions associated with sitewide activities are monitored via the existing sitewide environmental radon monitoring program presented in the IEMP (DOE 1997d).

TABLE 1-2
PADDYS RUN EMBANKMENT STABILIZATION PROJECT MONITORING SUMMARY
 (Continued)

Pathway & Component	Project-Specific Control Mechanism	Project -Specific Monitoring	Compliance Plan
Direct Radiation	No additional control mechanisms for environmental or public safety concerns are anticipated to be required as a result of the project.	None required.	Environmental radiation levels associated with sitewide activities are monitored via the existing sitewide environmental direct radiation monitoring program presented in the IEMP.
Surface Water Pathway			
Surface Water	Erosion and sedimentation controls to be installed per approved project design drawings. Channel disturbance and suspension of fines within channel to be mitigated by limiting equipment access to immediate project vicinity and through use of appropriate erosion and sedimentation controls as described above.	None required. Inspection and documentation of erosion and sedimentation controls on a weekly basis under FEMP Stormwater Pollution Prevention Plan (RM-0039).	Impact to overall surface water quality within Paddys Run to be monitored via existing IEMP surface water monitoring program. Samples will be collected at both upstream and downstream IEMP monitoring stations in accordance with existing IEMP schedule.
Groundwater Pathway			
Groundwater	None required. No adverse impacts to groundwater quality within the Great Miami Aquifer are anticipated.	None required.	Groundwater quality to be monitored via existing IEMP groundwater monitoring program presented in the IEMP.

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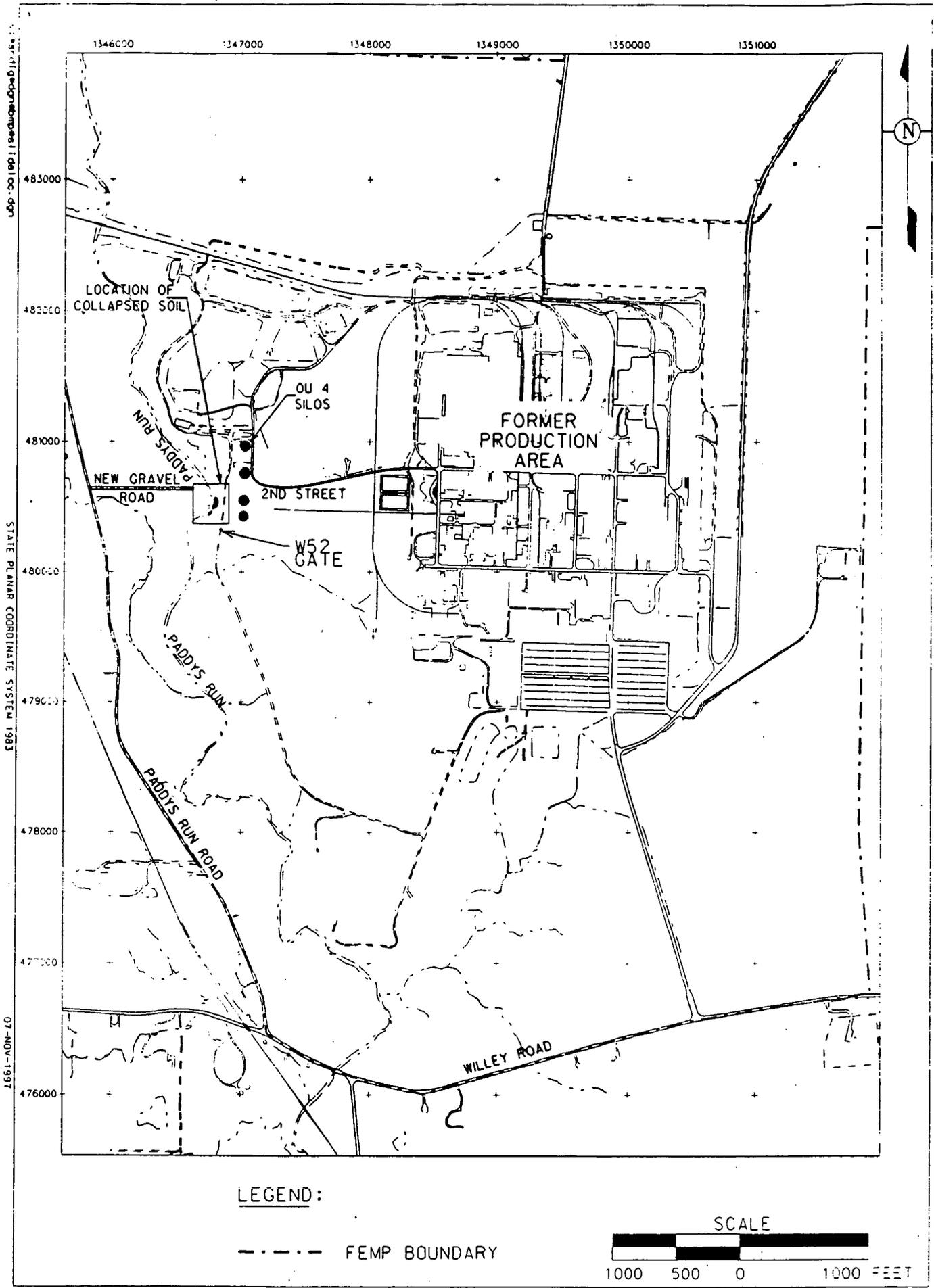


FIGURE 1-1. LOCATION OF COLLAPSED SOIL INTO PADDY'S RUN AT THE FEMP

000021

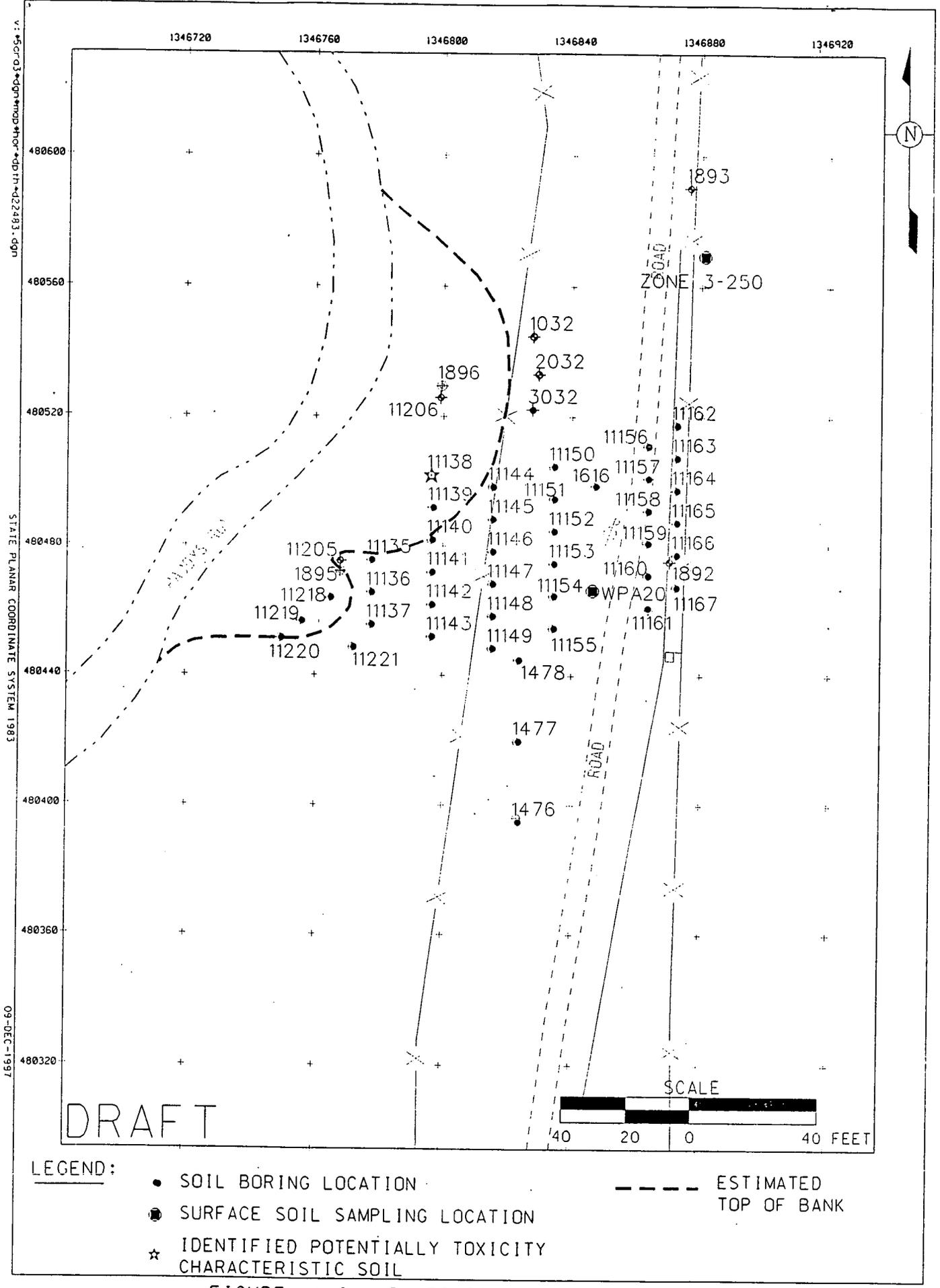


FIGURE 1-2. RI/FS SOIL BORING LOCATIONS ALONG THE EAST BANK OF PADDYS RUN

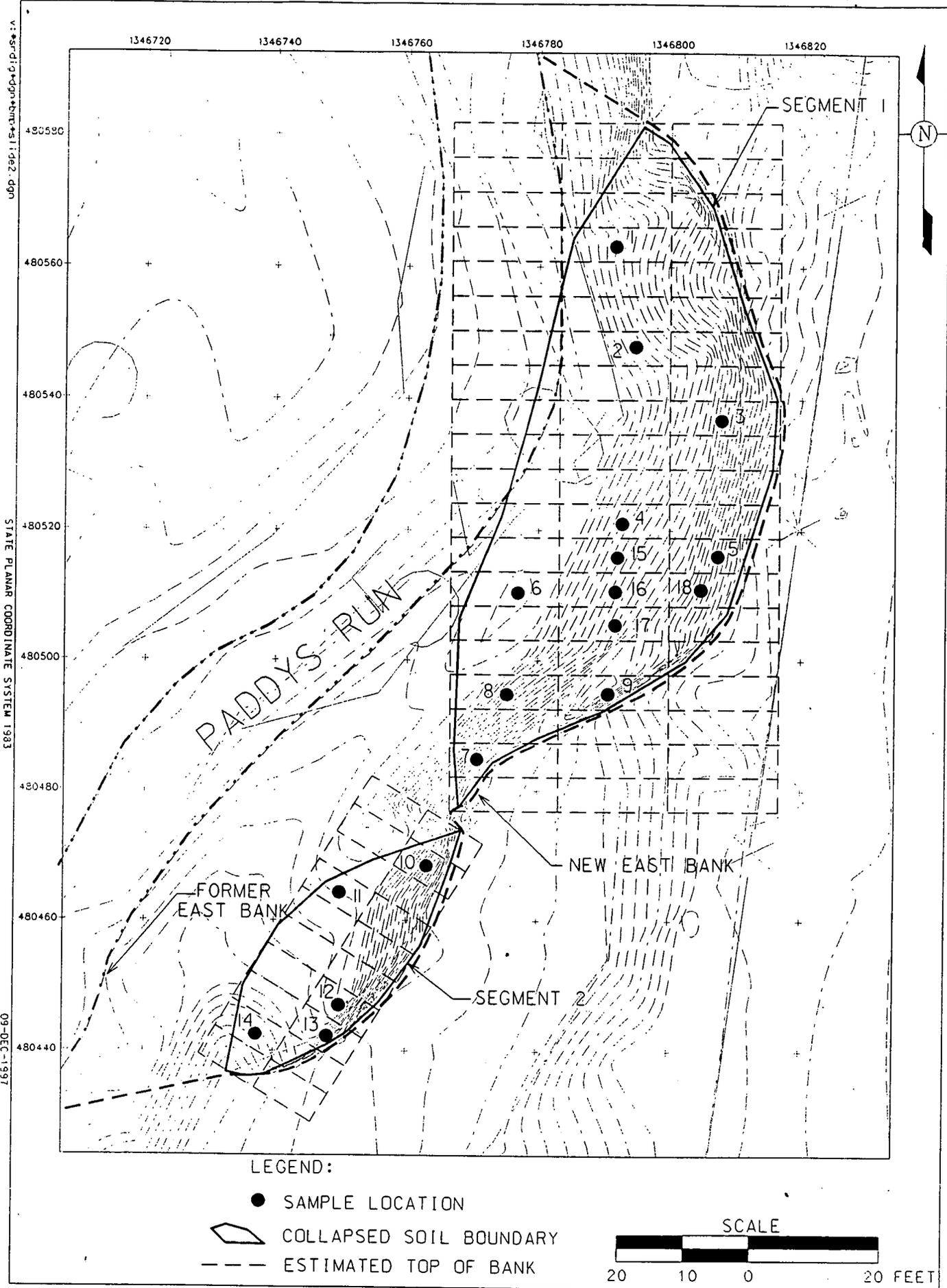


FIGURE 1-3. MAP OF SOIL COLLAPSED INTO PADDY'S RUN AND RANDOM WAC SAMPLE LOCATIONS

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

**PADDYS RUN EMBANKMENT STABILIZATION
WORK PLAN**



DECEMBER 1997

**U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE**

**20540-WP-0001
REVISION C
DRAFT**

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ACRONYMS AND ABBREVIATIONS

A/E	Architect/Engineer
ACOE	U.S. Army Corp of Engineers
ALARA	as low as reasonably achievable
APM	Area Project Manager
ARARs	applicable or relevant and appropriate requirements
ASCOC	Area-Specific Constituent of Concern
CC	Construction Coordinator
CCM	Construction Contract Manager
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CM	Construction Manager
CSC	Construction Support Contractor
dBA	decibels, A scale
DCN	design change notice
DOE	U.S. Department of Energy
ECC	Emergency Communications Center
ECDC	Engineering/Construction Document Control
EPA	U.S. Environmental Protection Agency
FDF	Fluor Daniel Fernald, Inc.
FEMP	Fernald Environmental Management Project
FRLs	final remediation levels
HEA	Habitat Equivalency Analysis
HPGe	high-purity germanium detector
NRIMP	Natural Resource Impact Monitoring Plan
NRRP	Natural Resource Restoration Plan
NSS	Nuclear and System Safety
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU	Operable Unit
PE	Project Engineer
PSP	Project Specific Plan
PWID	Project Waste Identification and Disposition
QA	quality assurance
QA/QC	quality assurance/quality control
QAJSP	Quality Assurance Job-Specific Plan
RCI	Request for Clarification of Information
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation/feasibility study
S&H	Safety and Health
SCEP	Soil Characterization and Excavation Project
SCQ	Sitewide CERCLA Quality Assurance Plan
SEP	Sitewide Excavation Plan
TBC	to be considered
WAC	waste acceptance criteria

1.0 INTRODUCTION

This section provides the background and scope for the Paddys Run Embankment Stabilization Project. Many of the initial activities listed below were completed under Phase I of the project. This work plan contains the remaining Phase I items to be completed under Phase II, along with a description of Phase II activities. The design for embankment stabilization involves riprap installation and is discussed in the "Conceptual Design for Paddys Run Streambank Stabilization" (Brown & Root 1997). Additionally, the data summary report for Phase I sampling is provided as Appendix A. This work plan does not address any Phase III activities.

1.1 BACKGROUND

The Paddys Run stream eroded a portion of its eastern bank at the Fernald Environmental Management Project (FEMP) within Soil Remediation Area 7, and west of Silos 1 and 2 (see Figure 1-1). Erosion of the stream bank resulted in a 30-foot high near-vertical slope and approximately 1700 cubic feet of soil, trees, and metal debris recently collapsing into the stream bed. To prevent further erosion that would compromise the integrity of the west Silos perimeter road, the FEMP Soil Characterization and Excavation Project (SCEP) mobilized on September 8, 1997 to begin activities to support the stabilization of the eastern stream bank.

1.1.1 Description of Work Phases

Both the Ohio and United States Environmental Protection Agencies (OEPA and EPA, respectively) were verbally notified by the Department of Energy (DOE) on September 9, 1997. As a follow-up to the verbal notification, DOE formally submitted a letter (DOE-1440-97) dated September 26, 1997, to both OEPA and EPA providing background to the situation and outlining Phase I (near-term), Phase II (short-term) and Phase III (long-term) tasks necessary to address erosion and contamination concerns. The following near-term tasks were outlined as Phase I of the project:

- Task 1: Notify OEPA and EPA
- Task 2: Post signs to restrict heavy equipment in the immediate area east of the fence, i.e., restrict access to the west Silos perimeter road. Also, conduct a topographic survey of the collapsed soil area and perform a Phase I archaeological survey of the land west to Paddys Run Road

- Task 3: Remove downed trees and associated root mat and root soil in the Paddys Run channel 1
- Task 4: Remove the metal debris (i.e., metal rebar, metal channel, and a 4' x 10' metal lid) in the channel 2
- Task 5: Remove a tall tree at the top of the east stream bank in danger of falling 3
- Task 6: Conduct radiological surveys and sample soil in the area of soil collapse, debris locations, and downed trees 4
- Task 7: Implement weekly inspections of the Paddys Run collapsed soil area. 5

In parallel to the above tasks, the conceptual design (Brown & Root 1997) and this work plan to address Phase II tasks were being developed for review and approval by OEPA and EPA. The following short-term tasks were outlined as Phase II of the Project: 6

- Task 8: Construct appropriate short-term protective measures to protect the eastern bank from further erosion and reroute Paddys Run flow to the west within the existing channel 7
- Task 9: Excavate and remove contaminated soil (if necessary) in the channel 8

Phase III of the project consists of potential long-term measures to be taken by the Silos Project to support Silos 1 and 2 remediation. Although not within the scope of this work plan, the following long-term task was outlined as Phase III: 9

- Task 10: Design and construct appropriate long-term protective measures to protect the eastern bank from further erosion and provide structural support for future construction activities in the silo area. 10

1.1.2 Work Completed and in Progress 11

The Phase I tasks were completed prior to October 9, 1997, with one exception. Task 5 was delayed to Phase II, because cutting the tree might have resulted in disturbance of the previous fallen tree's root mat (Task 3), which was radiologically contaminated. 12

Radiological Control Technicians detected radiological contamination of greater than 100 corrected counts per minute above background associated with the soil within the fallen tree's root mat and 35 cubic yards of soil was subsequently removed. 13

The contamination associated with the 4' x 10' metal lid was fixed. Subsequently the metal lid was removed and managed at an existing debris pile within the Former Production Area. Details and field screening data results are provided in the Paddys Run Data Summary Report, Appendix A.

The fallen trees were cut and moved to a brush pile established downstream. A lysimeter within the fallen trees was removed and discarded.

1.1.3 Summary of Analytical Results

DOE, EPA, and OEPA agreed that implementation of the engineering design could proceed without the requirement to meet final remediation levels (FRLs). The rationale was as follows:

- Upstream drainage areas within the FEMP have not yet been excavated and certified to meet FRLs. Therefore, it is unlikely that this portion of the Paddys Run east embankment area and stream bed could maintain its certification.
- In order to meet FRLs, the potential need to excavate areas of the east embankment area may impact the remediation plans for using the west perimeter road of Silos 1 and 2.

Therefore, soil sampling did not focus on determining concentrations above FRLs. This area is intended to be remediated in Area 7 Actions.

Above-Waste Criteria Acceptance (WAC) sampling occurred to determine the appropriate management of soils for final disposition, i.e., OU1 above-WAC stockpile or existing soil stockpile for future disposition in the On-Site Disposal Facility (OSDF).

Analytical laboratory results of the soil samples taken during Phase I of the Paddys Run Embankment Stabilization Project indicated that all materials excavated from Paddys Run met the on-site WAC for technetium-99 and total uranium. There is no on-site WAC for radium-226 or thorium-232, and therefore, comparative sample analyses was needed for WAC attainment. In addition, the collapsed soil does not exhibit RCRA toxicity characteristic levels for lead or chromium. Appendix A describes in detail the sampling and analysis program, field screening process, and analytical results of physical sampling for the Paddys Run Embankment Stabilization Project.

Thorium-232 was not detected above the FRL of 1.5 pCi/g using the high-purity germanium detector (HPGe) after excavation in the vicinity of the root mat. Laboratory analyses for total uranium, technetium-99, chromium, and lead indicated concentrations below their respective FRLs, as shown on Table 4 of Appendix A. Radium-226 was detected below the FRL of 1.7 pCi/g in Segment 2 after excavation of the 35 cubic yards of root mat soil and adjacent soil. Sample Location 23, which was positioned beneath the location of the metal lid, showed the highest concentration of total uranium at 19.3 ppm.

1.2 SCOPE

Design and construction scopes of Phase II work involves removing soil for riprap installation and subsequent riprap placement.

1.2.1 Design

The design focuses on protecting the east bank of Paddys Run from further stream erosion. The design is discussed in detail in the Conceptual Design Report (Brown & Root 1997). A riprap barrier will be installed to protect the east bank of Paddys Run. Additionally, a vegetative barrier will be established downstream from the riprap installation to protect the west bank of Paddys Run (see Figure 1-4, Project Location Map).

1.2.2 Construction

The scope of construction will be to implement the design and record the final limits of riprap installation. This vegetative barrier that is to be established is discussed in Section 2.2.

1.3 REGULATORY DRIVERS

The following sections describe applicable regulatory drivers for the project, including Natural Resource Trusteeship commitments. Environmental monitoring and control requirements are also discussed as they apply to this project. Cultural resource survey work was completed during Phase I of this project; the results are summarized in Section 1.3.4.

1.3.1 ARARs and Substantive Permitting Requirements

As part of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action, pursuant to Section 121(e) of CERCLA and 40 CFR 300.400(e), the Paddys Run Embankment Stabilization Project is exempt from obtaining administrative permit approval. Project-specific Applicable or Relevant and Appropriate Requirements (ARARs), To-Be-Considered criteria (TBCs), and permits/notifications that would have been required in absence of the CERCLA Section 121(e) permit exemption described above are based upon review of the ARARs and TBCs listed in the Sitewide Excavation Plan (SEP; DOE 1997a). Substantive requirements and the manner in which they will be addressed are presented in Table 1-1, Paddys Run Embankment Stabilization Project Substantive Permitting Cross-walk.

1.3.2 Project-Specific Environmental Controls and Monitoring

This work plan will comply with Section 5.0 of the SEP (DOE 1997a) which defines the general approach for implementing project-specific environmental controls and for conducting project-specific monitoring during remediation of impacted soils at the Fernald site. Environmental control mechanisms and monitoring requirements are provided therein by pathway for air, surface water, and groundwater. As a subset of the overall soil remediation efforts occurring at the FEMP, this project will be subject to applicable provisions of these overall environmental control and monitoring requirements. Table 1-2, Paddys Run Embankment Stabilization Project Monitoring Summary, summarizes the manner in which environmental control and monitoring requirements will be addressed for each pathway.

1.3.3 Natural Resource Trusteeship

Some clearing will be necessary to allow equipment access to the stream bed from the west. Additional clearing of smaller growth within the stream bed is also required. All cleared vegetation will be relocated to the existing brush pile established during Phase I activities. Should additional storage volume be warranted, an alternate brush pile location has been established in the southernmost portion of the lower pasture adjacent to the project area see (Figure 1-4, Project Location Map). Every effort will be made during the installation of the barriers to preserve the mature stand of trees west of the stream. These trees will continue to support west bank stabilization.

Beyond seeding and mulching areas in the upper and lower pasture disturbed during this action, no additional measures will be taken to re-establish new growth vegetation in this area. If additional trees were to be installed, they may have to be removed to facilitate future remediation in Area 7 or Area 8. The proposed Natural Resource Restoration Plan (NRRP; DOE 1997c) addresses final restoration of this portion of Paddys Run Stream and adjacent areas after soil certification has been completed under Area 7 and Area 8.

Ecological impact to the stream bed of Paddys Run as a result of these Phase II actions is expected to be minimal. Whenever possible, work will be done during periods when there is little or no flow in the stream. There is no unique habitat nor are there any concerns with threatened or endangered species in the area of these Phase II actions.

Disturbance of this portion of Paddys Run was anticipated in the Natural Resource Impact Assessment due to the likelihood of contaminated soil in this area. However, impact to this part of Paddys Run has been accelerated to the present as the result of natural erosion and the resultant east stream bank collapse. The Habitat Equivalency Analysis (HEA) attached to the NRRP (DOE 1997c) considers the natural resource impacts identified in the Natural Resource Impact Assessment and establishes the amount of natural resource restoration required to compensate for those impacts. The HEA will be revised to reflect these changed conditions. Subsequently, compensation for the disturbance of this area will be addressed within the proposed NRRP (DOE 1997c), which is currently being developed in consultation with the Fernald Natural Resource Trustees. The disturbance of this area will also be identified and reported as part of the monitoring carried out under the Natural Resource Impact Monitoring Plan (NRIMP; Appendix D of the IEMP).

1.3.4 Cultural Resources

A cultural resources survey was performed on the 6-acre parcel in the lower pasture and an associated access road crossing the upper pasture for the Embankment Stabilization Project. Prehistoric cultural materials were recovered from three previously undocumented archaeological sites in the 6-acre parcel. No cultural resources were encountered in the associated access road. The sites discovered do not meet the four criteria outlined by the Advisory Council on Historic Preservation for inclusion in the National Registry of Historic Places. No further cultural resources work at these specific sites is required.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK**

Condition	Substantive Requirement	Compliance Plan
Nationwide Permit 38 - Cleanup of Hazardous and Toxic Waste¹ (Appendix A, 33 CFR Part 330)		
Navigation	No activity may cause more than a minimal effect on navigation.	The proposed activity will have no impact on navigation. Paddys Run is a small intermittent stream not normally used for navigation, either in commerce or recreation. Impacts associated with the project will be temporary in nature and will be limited to periods when work is actually being conducted within the stream channel. No permanent obstructions or impediments to flow will be installed as part of the project. Any temporary structures or fills placed below the ordinary high water mark of the stream will be removed prior to completion of work.
Proper Maintenance	Any structure or fill authorized shall be maintained to ensure public safety.	Public access to the project area is restricted by the site perimeter fence. The project area will be staffed and inspected on a daily basis while work is being conducted to ensure workers and the public are protected. Bank stabilization structures placed within the stream channel will be periodically inspected and maintained as required after completion of construction activities.
Erosion and Siltation Controls	Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.	Heavy equipment will be limited to the immediate project vicinity to avoid and minimize re-suspension of material within the stream channel. Due to the intermittent nature of Paddys Run, work within the channel will be limited to periods when minimal flow exists. Silt fence and/or other appropriate methods of sedimentation and erosion control will be used as necessary to minimize potential erosion and sediment transport. Disturbed soils will be stabilized after completion of construction activities, as appropriate.
Aquatic Life Movement	No activity may substantially disrupt the movement of those species of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.	Paddys Run is a small intermittent stream. No disruption in the movement of aquatic species is anticipated as a result of the project. Any temporary fills or structures placed below the ordinary high water mark of Paddys Run will be removed prior to completion of the project.
Equipment	Heavy equipment working within wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.	Not applicable. The project area is not located within a jurisdictional wetland. Heavy equipment will be limited to the immediate project vicinity to avoid and minimize impacts to the stream bed of Paddys Run.
Regional and Case-by-Case	Activities must comply with any regional or case-by-case conditions added by the Division Engineer.	Not applicable. No regional or case-specific conditions have been added by the U.S. Army Corp of Engineers (ACOE).

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Wild and Scenic Rivers	No activity may occur in a component of the National Wild and Scenic River System.	Not applicable. Paddys Run is not a part of the National Wild and Scenic River System.
Tribal Rights	No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.	Not applicable. No tribal water, fishing, or hunting treaty rights have been granted for Paddys Run.
Water Quality Certification	Section 401 State Water Certification must be obtained or waived.	This project is being implemented under the provisions of NWP 38. Ohio EPA issued its corresponding Section 401 State Water Quality Certification for NWP 38 in January 1992. The citation for this certification and Ohio EPA's implementing regulations for its Section 401 Program (OAC 3745-32) are identified in the OUS ARARs.
Coastal Zone Management	State coastal zone management consistency concurrence must be obtained or waived.	Not applicable. Paddys Run is not regulated under state coastal management regulations or statutes.
Endangered Species	No activity is authorized under any NWP, which is likely to jeopardize the continued existence or modify the critical habitat of a threatened or endangered species or species proposed for such designation.	No known federally-listed threatened or endangered species or critical habitat will be impacted by the project. Surveys for state-listed Sloan's crayfish (<i>Orconectes sloani</i>) were conducted in Paddys Run in 1993-1994. No known individuals of the species were encountered in the immediate project area during these surveys.
Historic Properties	No activity which may affect historic properties listed, eligible of listing, in the National Register of Historic Places in authorized.	No impacts to historic properties are anticipated. The project area was surveyed prior to disturbance in accordance with the Programmatic Agreement Regarding Archaeological Investigations at the Fernald Environmental Management Project (March 6, 1997). Any unanticipated discoveries will be addressed in accordance with that programmatic agreement between DOE, the Ohio Historic Preservation Office, and the Advisory Council on Historic Preservation.
Notification	When required by the terms of a NWP, the permittee must notify the ACOE in accordance these provisions.	Not applicable. ACOE notification is not required for CERCLA remedial actions regulated by EPA. (See NWP 38 terms and conditions, Appendix A to 33 CFR Part 330); confirmed in a October 8, 1997 conference call with representatives from the ACOE-Louisville District Office.
Water Supply Intakes	No discharges of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structure or adjacent bank stabilization.	Not applicable. No public water supply intakes are located on Paddys Run.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Shellfish Production	No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to shellfish harvesting authorized by NWP 4.	Not applicable. Paddys Run is not used for shellfish production.
Suitable Material	No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts.	Fill material placed as part of the project will be comprised of clean rock and existing channel material. To minimize potential sediment transport, work will be limited to periods when minimal flow exists within the channel. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Mitigation	Discharges of dredged or fill material into waters of the United States must be minimized and avoided to the maximum extent practicable at the project site.	Disturbances within the stream bed of Paddys Run will be limited to the immediate project vicinity. Work will be limited to periods when minimal flow exists within the channel. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Spawning Areas	Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.	Work will be limited to periods when minimal flow exists within the channel. No adverse impacts to spawning areas is anticipated. Appropriate erosion and sedimentation controls will also be used as necessary to minimize sediment transport.
Obstruction of High Flows	To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).	No restrictions or impediments to normal or expected high flows will result from the proposed project. Based on HEC-2 modeling runs conducted during the project alternative analysis, changes in the pool elevations of the 10-yr, 25-yr, and 100-yr floods will be minimal (< 1 foot).
Adverse Effects from Impoundments	If the discharge creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.	The proposed project will not result in the impoundment of water. No permanent impoundments or flow obstructions will be placed as part of the proposed project.
Waterfowl Breeding Areas	Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.	Not applicable. Paddys Run is a small intermittent stream that is not used extensively by water fowl during the breeding season. Impacts associated with the proposed project will be temporary in nature and will be limited to periods when minimal flow exists within the channel of Paddys Run.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Removal of Temporary Fills	Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing elevation.	Any temporary fills placed as part of the proposed project will be removed prior to completion of construction activities.
Clean Water Act Section 401 State Water Quality Certification² (OAC 3745-32)		
Bank Stabilization	Steps shall be taken, upon completion of the project, to ensure bank stability. This may include, but is not limited to, the placement of riprap or bank seeding.	Disturbed soils associated with the proposed project will be restabilized upon completion of construction activities.
Mitigation	Any damages to the immediate environment of the project by equipment for construction or hauling will be repaired immediately.	The movement of heavy equipment will be limited to the immediate project area. Disturbed soils associated with the proposed project will be restabilized upon completion of construction activities.
Adverse Impacts to Water Quality and Aquatic Life	Care must be employed throughout the course of the project to avoid the creation of unnecessary turbidity which may degrade water quality or adversely affect aquatic life outside of the project area.	The movement of heavy equipment will be limited to the immediate project vicinity and will only occur during periods when minimal flow exists within the channel to avoid and minimize resuspension of material within the water column of Paddys Run. Appropriate erosion and sedimentation controls will also be used to minimize sediment transport.
Notification	The Corps of Engineers shall provide copies of the pre-discharge notifications to both the Ohio EPA and the Ohio Department of Natural Resources pursuant to the notification procedures outlined in Appendix A to 33 CFR Part 330.	Not applicable. ACOE notification is not required for CERCLA response actions regulated by EPA; confirmed in a October 8, 1997 conference call with representatives from the ACOE-Louisville District Office. (See NWP 38 terms and conditions, Appendix A to 33 CFR Part 330). Pre-discharge notification to EPA and OEPA will be conducted by DOE via submission of this plan.

**TABLE 1-1
PADDYS RUN EMBANKMENT STABILIZATION PROJECT
SUBSTANTIVE PERMITTING CROSS-WALK
(Continued)**

Condition	Substantive Requirement	Compliance Plan
Notification of Floodplain Involvement³ (10 CFR 1022)		
Avoidance and Minimization of Floodplain Impacts	Federal agencies undertaking actions within floodplains must take appropriate steps to avoid and minimize potential floodplain impacts.	Floodplain impacts associated with the OU5 remedial action were previously described in the OU5 Feasibility Study. The proposed project will not cause any short- or long-term impacts to the floodplain of Paddys Run. Based on HEC-2 modeling runs conducted during the project alternative analysis, changes in the pool elevations of the 10-yr, 25-yr, and 100-yr floods will be minimal (< 1 foot). Impacts will be minimized by restricting the movement of heavy equipment to the immediate project area.

¹ See Appendix A to 33 CFR Part 330 and Appendix B of the OU5 ROD (DOE 1995b) for additional detail.

² Ohio EPA granted Section 401 State Water Quality Certification for NWP 38 on January 17, 1992. See OAC 3745-32 and Appendix B of the OU5 ROD for additional details.

³ See OU5 Feasibility Study (DOE 1995a) and Appendix B of the OU5 ROD (DOE 1995b) for additional detail.

**TABLE 1-2
PADDYS RUN EMBANKMENT STABILIZATION PROJECT MONITORING SUMMARY**

Pathway & Component	Project-Specific Control Mechanism	Project -Specific Monitoring	Compliance Plan
Air Pathway			
Noise Control and Abatement	An administrative action level of 85 dBA has been set for the project. It will be used to assess the need for hearing protection for field personnel, the need for maintenance of vehicles and machinery, and the need for additional noise control and abatement measures.	Noise monitoring will be conducted in the field by health and safety personnel to assess whether administrative action levels are exceeded, the need for hearing protection, the need for vehicle/machinery maintenance, and the need for additional control measures.	Project-specific noise monitoring requirements, administrative action levels, and personnel protective equipment requirements will be provided in the project-specific health and safety requirements documents.
Fugitive Dust Emissions	Fugitive dust controls to be established in accordance with requirements of site requirements manual RM-0047 - "Fugitive Dust Control Requirements (Rev. 0, August 1997), developed from the OEPA's fugitive dust control best available technology (BAT) determination. Control mechanisms to consist primarily of water spray on exposed/working soil surfaces.	Visual emission monitoring to be conducted and documented in accordance with requirements specified in RM-0047.	Project-specific dust controls and visual emission monitoring to be conducted and documented in accordance with requirements of RM-0047.
Airborne Radiological Particulates	Fugitive dust controls in accordance with RM-0047 per above.	None required. No point source emissions will be associated with the project. No fugitive radiological particulate emissions are anticipated. Monitoring for visual dust emissions will be conducted in accordance with RM-0047 per above.	Airborne radiological particulate emissions associated with sitewide activities are monitored via the existing sitewide airborne radiological particulate monitoring program presented in the IEMP. Emissions associated with site remediation projects are accounted for in the sitewide dose assessment prepared for the Annual FEMP NESHAP Subpart H report.
Radon	Not applicable. No radon emissions are anticipated to be associated with the proposed project.	None required.	Radon emissions associated with sitewide activities are monitored via the existing sitewide environmental radon monitoring program presented in the IEMP (DOE 1997d).

**TABLE 1-2
PADDYS RUN EMBANKMENT STABILIZATION PROJECT MONITORING SUMMARY
(Continued)**

Pathway & Component	Project-Specific Control Mechanism	Project -Specific Monitoring	Compliance Plan
Direct Radiation	No additional control mechanisms for environmental or public safety concerns are anticipated to be required as a result of the project.	None required.	Environmental radiation levels associated with sitewide activities are monitored via the existing sitewide environmental direct radiation monitoring program presented in the IEMP.
Surface Water Pathway			
Surface Water	Erosion and sedimentation controls to be installed per approved project design drawings. Channel disturbance and suspension of fines within channel to be mitigated by limiting equipment access to immediate project vicinity and through use of appropriate erosion and sedimentation controls as described above.	None required. Inspection and documentation of erosion and sedimentation controls on a weekly basis under FEMP Stormwater Pollution Prevention Plan (RM-0039).	Impact to overall surface water quality within Paddys Run to be monitored via existing IEMP surface water monitoring program. Samples will be collected at both upstream and downstream IEMP monitoring stations in accordance with existing IEMP schedule.
Groundwater Pathway			
Groundwater	None required. No adverse impacts to groundwater quality within the Great Miami Aquifer are anticipated.	None required.	Groundwater quality to be monitored via existing IEMP groundwater monitoring program presented in the IEMP.

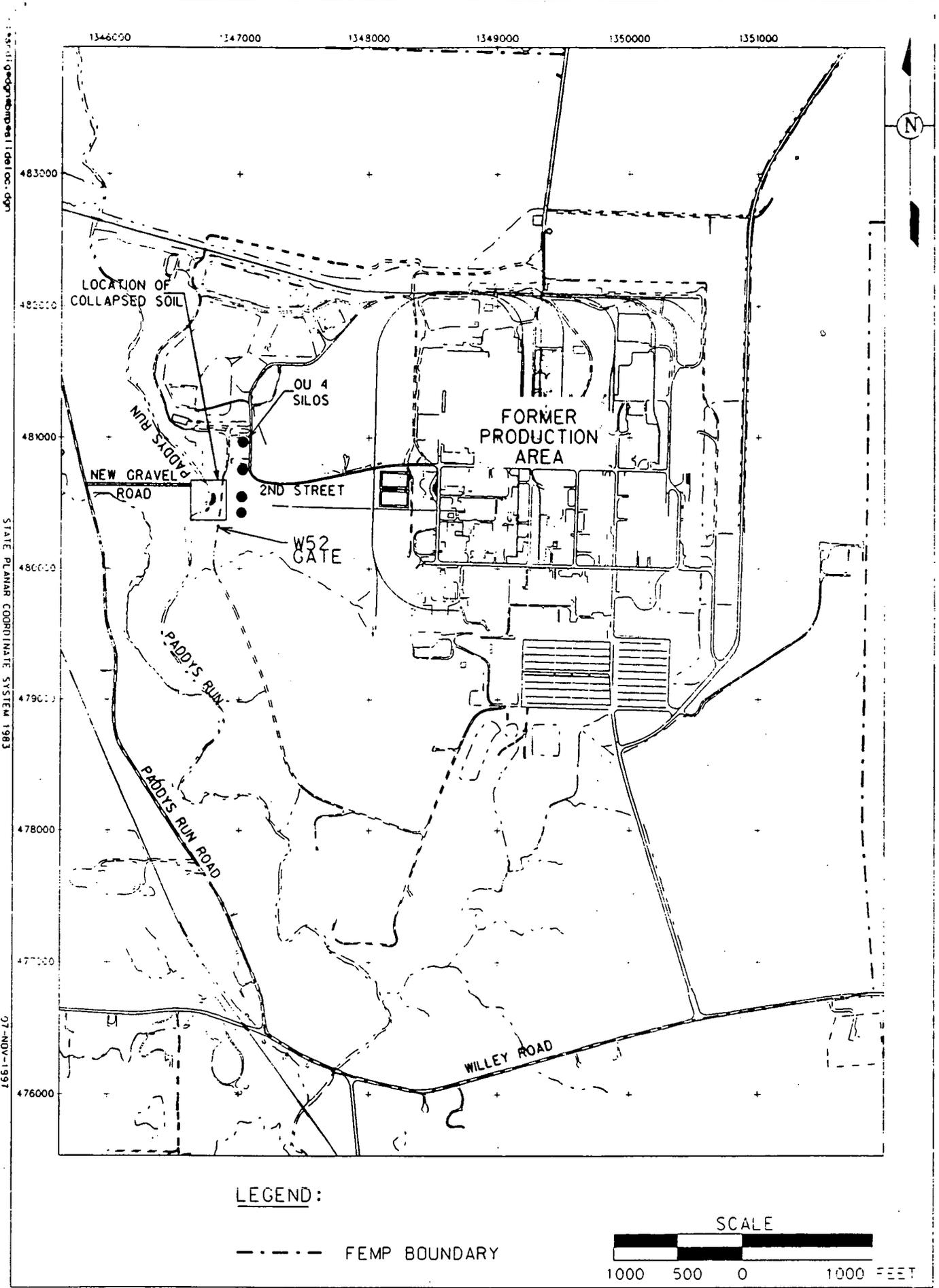


FIGURE 1-1. LOCATION OF COLLAPSED SOIL INTO PADDYS RUN AT THE FEMP
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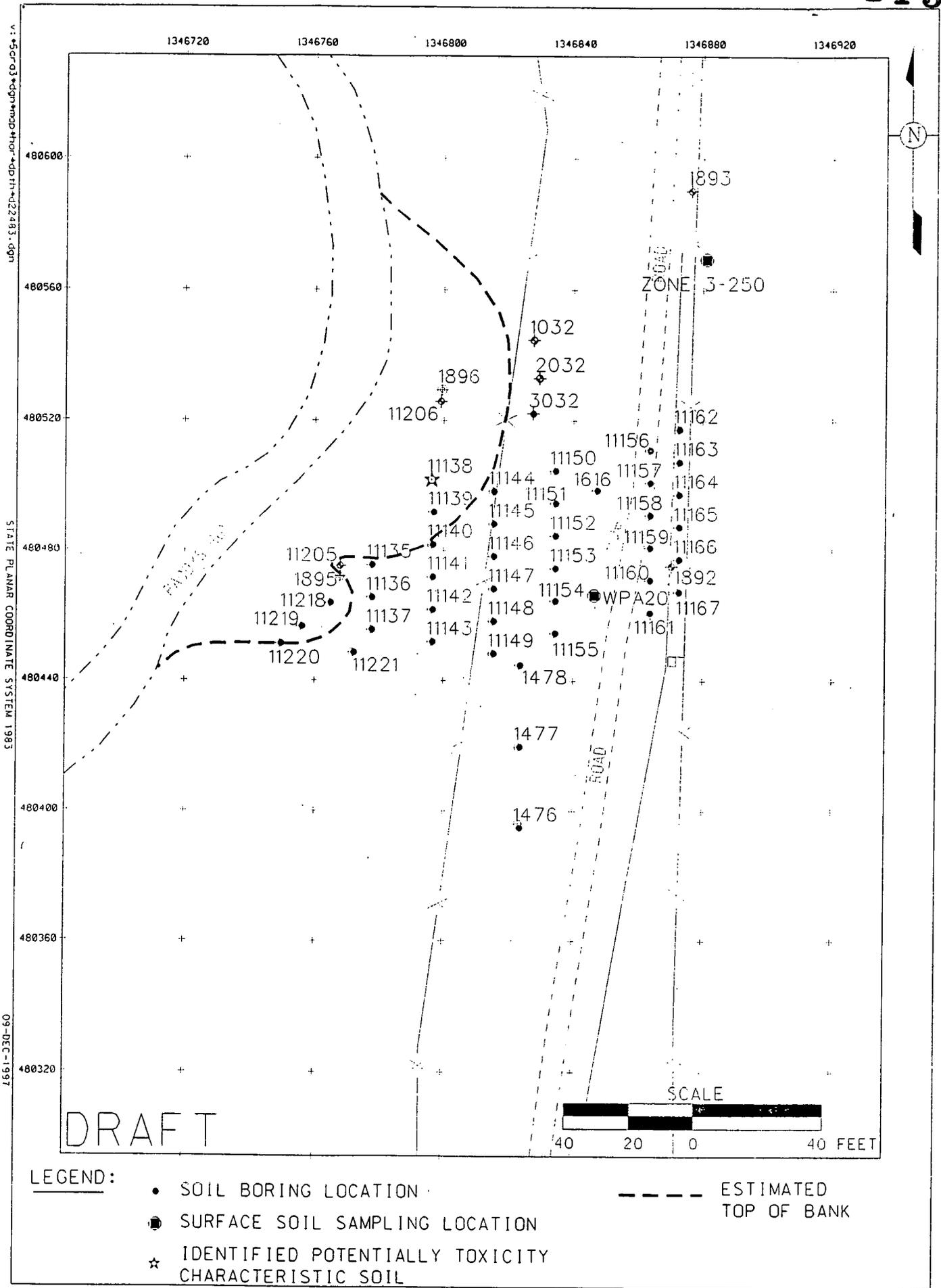


FIGURE 1-2. RI/FS SOIL BORING LOCATIONS ALONG THE EAST BANK OF PADDY'S RUN

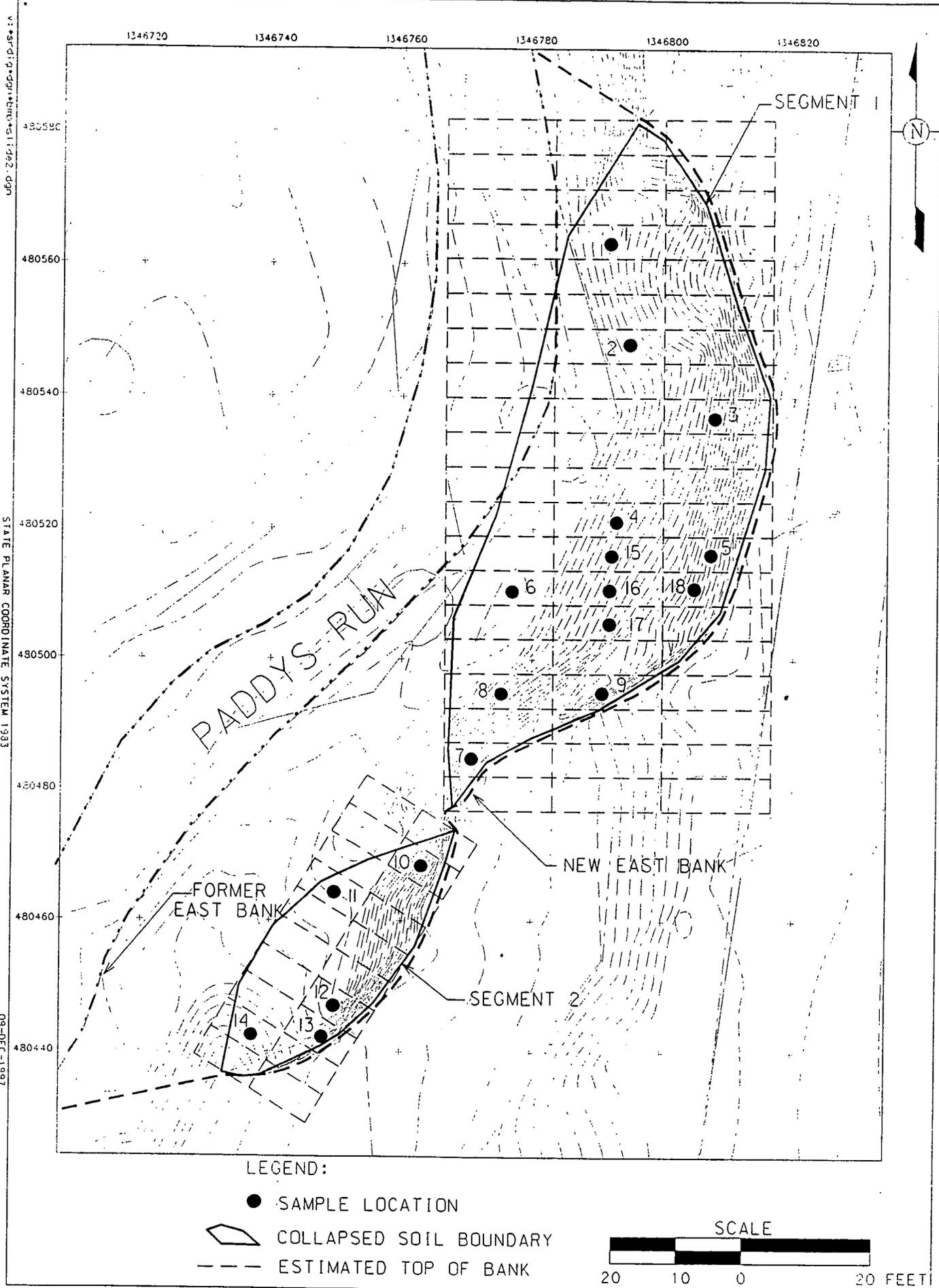
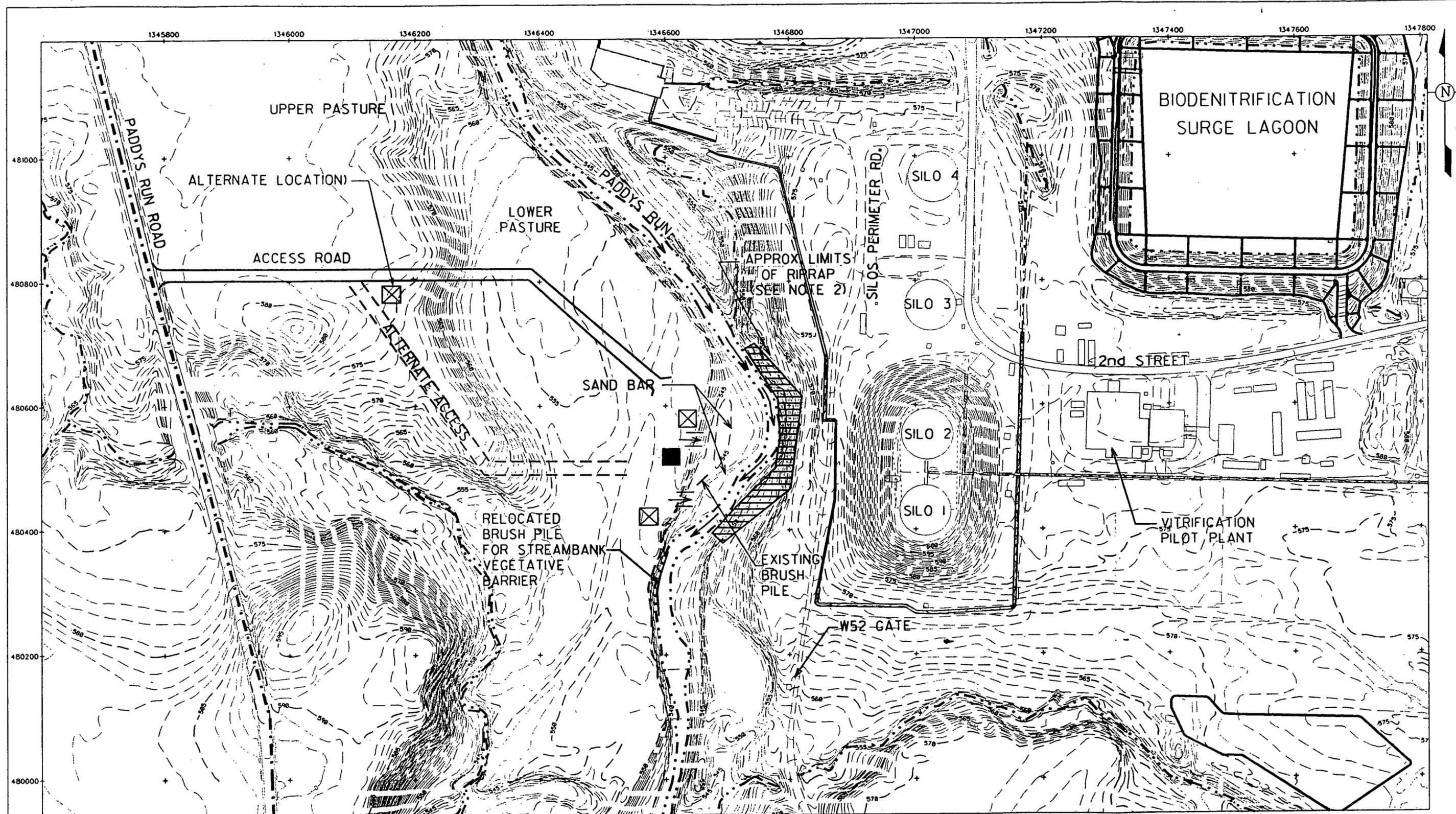


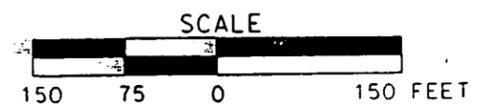
FIGURE 1-3. MAP OF SOIL COLLAPSED INTO PADDYS RUN AND RANDOM WAC SAMPLE LOCATIONS

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NOTES:
 1. TOPOGRAPHIC INFORMATION BASED ON 1992 FLYOVER.
 2. SEE 'CONCEPTUAL DESIGN FOR PADDYS RUN STREAM BANK STABILIZATION' BY BROWN & ROOT ENVIRONMENTAL FOR 1997 TOPO & LIMITS OF RIPRAP.

LEGEND:
 [X] RIPRAP STOCKPILE
 [Hatched Box] APPROX. LIMITS OF RIPRAP
 [Dashed Line] SURFACE WATER CHANNELS
 [Dashed Line] FEMP BOUNDARY
 [Black Square] SOIL STOCKPILE (IF NECESSARY)
 [Double Line with Arrow] ACCESS RAMPS



2.0 EMBANKMENT STABILIZATION APPROACH

This section summarizes the design and construction approach to stabilize the east stream bank from further erosion.

2.1 DESCRIPTION OF THE DESIGN

The embankment stabilization design will use approximately 4,310 tons of Ohio Department of Transportation (ODOT) Type C riprap placed at a slope of two feet horizontal to one foot vertical. The length of the riprap installation along the stream bed is approximately 400 feet. A geotextile fabric will be placed on the existing embankment prior to riprap placement.

Additional information on the design and the complete evaluation of other design alternatives are presented in "Conceptual Design for Paddys Run Streambank Stabilization" (Brown & Root 1997). Major elements used in the design selection of the preferred alternative include: potential for future erosion, flood mitigation, construction impact on the area, construction duration, constructibility, cost, and slope stability.

Due to the urgent nature of implementing the design, the design functional requirements and design criteria are included in the conceptual design. Additionally, construction drawings are presented in the form of sketches. These sketches include a plan view of the extent of the riprapped area along with selected cross-sections to show geotextile and riprap location for material take-offs and a list of general notes.

2.2 DESCRIPTION OF CONSTRUCTION

Figure 1-4 shows the general plan of roads, stockpiles, brush piles, ramps, and riprap installation. Implementation of the design will be communicated by FDF to the Construction Support Contractor through the use of a Construction Traveler Package. A Construction Traveler Package includes the scope of work, field instructions, safety precautions, training and personnel protective requirements, permits, and any project waste identification. A pre-job briefing and walk-down of the area will occur prior to the commencement of riprap vegetative barrier installation. Major equipment planned to be used during construction are a bulldozer, track front end loader, track backhoe, water trailer, and articulating truck.

Equipment, materials, and personnel will be transported to the project area from Paddys Run Road by a new road. The road will be within a corridor previously established in the upper pasture during the Phase I archaeological survey. Gravel will be placed on the road as necessary for maintenance. The road will extend down the hill and terminate at a point within the lower pasture. The road will remain in place for any future Area 7 or Area 8 activities, including inspections and maintenance of the riprap. An alternate location of the road is shown should the need arise due to wet conditions or terrain. Road areas not already graveled at the end of construction will be seeded and mulched.

A portion of the west bank will be cleared of small trees to provide an access ramp to Paddys Run at two locations. The two locations represent areas that minimize both west bank tree removal and equipment travel distances to the north and south portions of the east stream bank riprap placement. No other portion of the west bank are anticipated to be disturbed. The ramp will be constructed from riprap material and will extend into Paddys Run. The ramps will be wide enough to accommodate the construction equipment accessing Paddys Run. The ramps will be removed and the riprap stockpiled in the lower pasture prior to construction completion.

Temporary stockpile locations have been identified in Figure 1-4 in case deliveries arrive faster than installation during construction. The most favorable location is in the lower pasture adjacent to the access ramps to minimize distance to the point of installation. The second most favorable location will be next to the access road at the top of the hill in the upper pasture.

Excavation and disturbance of the east embankment will be minimal, thereby reducing the risk of aggravating the present slope conditions. No soil will be removed from the east embankment for stockpiling. Any soil that would otherwise represent protrusions in the embankment that would interfere with the safe installation of the geotextile layer will be worked and smoothed to conform to the surrounding embankment or placed at the embankment toe and compacted.

Several small tree saplings (up to 4 inches in diameter) associated with the collapsed soil in the stream bed will be removed to facilitate placement of the geotextile layer. Additionally, saplings at the top of the embankment will be cut to allow geotextile placement prior to riprap installation and for equipment mobility when the riprap reaches its final height. Removal of other trees outside the collapsed soil area but within the planned riprap area will be kept at a minimum. All trees to be removed will be marked

with paint and surveying ribbon prior to mobilization. Task 5 from Phase I (Section 1.1) involving removal of the tall tree is no longer planned. However, it will be removed if this tree impedes the safe operation of equipment during riprap installation.

Cut trees and saplings will be placed downstream and along the toe of the west bank (see Figure 1-4). The existing brush pile established during Phase I activities will be relocated downstream to this same area. The cut trees, saplings, and brush pile will serve as a vegetative barrier to protect the west stream bank from erosion. This vegetation will be held in place with metal rebar or rods. Additionally, wooden stakes will be placed at the top of the west stream bank above the vegetative barrier. The vegetative barrier and stakes will be periodically monitored to determine if any future stabilization controls are needed.

The existing sandbar within the Paddys Run stream bed will be partially removed for two reasons. The first reason is to level the stream bed bottom to form a suitable base for the riprap installation. The second reason is to establish a flow channel in the event of low flow (resulting from a one-year storm) within Paddys Run. The resulting excavated sandbar material will be used to weigh the geotextile down prior to riprap placement. Riprap may also be placed within the channel to bridge from the west Stream bank to the east embankment. The riprap bridge would keep equipment out of the water, thus minimizing stream bed disturbance during low flow conditions. The bridge would be no higher than four feet and would be removed prior to completion of construction.

Any excess riprap, riprap from the access ramp, and riprap from the channel bridge will be stockpiled in the lower pasture for maintenance of the east embankment. There will be no geotextile underlayment or construction fence around the riprap stockpile.

Although not expected, any soil that might be excavated and permanently stockpiled will be located in the lower pasture. Geotextile would be placed prior to that stockpiling. The resulting stockpile would be seeded and mulched, with both a silt fence and construction fence installed at its perimeter. The silt fence would be removed after a sufficient stand of vegetation has been established.

At the completion of the riprap installation, topographic cross-sections of the east embankment will be taken at 50-foot intervals and the location of the toe of the riprap slope will be determined. The

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wooden stakes at the vegetative barrier will also be surveyed and recorded. The information will be 1
utilized to develop design sketches as the as-builts for the project record. 2

3.0 MATERIAL MANAGEMENT

The collapsed soil, downed tree root soil, soil under the downed tree, associated root mat and metal debris within the Paddys Run stream bed were sampled and removed during Phase I. Project Specific Plan (PSP) 20540-PSP-0001 (and associated variances) and the Project Waste Identification and Disposition (PWID) No. 461 provided in Phase I and will continue to provide in Phase II the guidelines for sampling, analysis, tracking and disposition for soils and debris.

3.1 SPECIAL MATERIALS

Although not identified during preceding activities, special materials might be encountered during activities. When present, these waste streams will require special handling due to potential S&H concerns (see Section F.4.1 of the SEP; DOE 1997a). The special material categories are:

- Asbestos Containing Materials
- Non-pressurized containers
- Pressurized containers
- Pumps
- Non-soil residues
- Transformers
- Lead acid batteries
- Uranium metal
- Medical/infectious waste
- Miscellaneous debris
- Tires.

Further description of these categories is provided in Appendix F of the SEP (DOE 1997a), along with the contingency plan for handling their excavation. Portions of these waste streams will be eligible for OSDF disposition, but may require physical processing, sampling and analysis, or interim containerization. The balance will be evaluated for off-site disposition. The general protocols for managing special materials are provided in Figures F.5-2 through F.5-12 of the SEP (DOE 1997a).



4.0 PROJECT-SPECIFIC SAFETY AND HEALTH

This section describes the functional areas under Safety and Health (S&H) and the roles and responsibilities of the functional area representatives. These roles and responsibilities are not reiterated under Section 5.0.

4.1 OCCUPATIONAL SAFETY AND HEALTH

One person from the Occupational S&H Department will be assigned to the Paddys Run Embankment Stabilization Project on a part time basis. The S&H Representative will be responsible for integrating S&H into all aspects of the project.

S&H requirements for the construction phase of the project will be communicated in the Construction Traveler Package and Fluor Daniel Fernald (FDF) Work Permit in accordance with RM-0021, Safety Performance Requirements Manual and SH-0001, Development and Issue of Project Specific Health and Safety Requirements. Additionally, the S&H Representative assists in implementation of safety measures, and evaluation of process changes for safety compliance. The S&H Representative conducts thorough preconstruction inspections of the work site and periodic walk-throughs once construction activities begin.

4.2 RADIOLOGICAL CONTROL

The occupational radiological protection program will be implemented through operating procedures, Job Safety Analysis, existing site and Radiological Control Department procedures, and Radiological Work Permits associated with field activities. The Radiological Control Department implements radiological controls at the FEMP in accordance with 10 Code of Federal Regulations (CFR) Part 835, Occupational Radiation Protection, as relayed in RM-0020, Radiological Control Requirements Manual.

Existing Radiological Control departmental procedures will be utilized for equipment calibrations, measurements, response checks, and calculations of all Radiological Control data. The application of the general and the project-specific documents will demonstrate compliance with RM-0020.

A Radiological Engineer will provide the primary Radiological Control interface during the project planning, design, and field implementation phases for the project. Radiological Control Technicians will provide the necessary radiological coverage during excavation and field work.

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An Occupational As Low As Reasonably Achievable (ALARA) Plan is not required based on an evaluation of the expected occupational exposures for the project. The data collected during radiological monitoring in the field will be evaluated to ensure the adequacy of implemented controls and to ensure exposures are maintained ALARA. Existing FDF Soil and Water Project performance indicators (of which the Paddys Run Embankment Stabilization Project is a sub-project) will be used to evaluate the Paddys Run Embankment Stabilization Project performance against established goals.

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4.3 NUCLEAR AND SYSTEM SAFETY

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Nuclear and System Safety (NSS) support for the Paddys Run Stabilization Project will commence at project kickoff. The scope of NSS includes development of Safety Analysis documentation (i.e., Safety Assessments, Unreviewed Safety Questions, Hazard Categorization, Hazard Analysis). One person from NSS will be assigned on a part time basis and will be responsible for safety basis documentation.

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The NSS team member will assist Project Management in understanding the safety basis for the project and the associated requirements to mitigate chemical, radiological, and occupational hazards. NSS will also assist in the development of design features and operating controls necessary to maintain the safety basis, evaluation of process changes for impact on the safety basis, and determination of root causes for events of an operational nature. Safety basis documentation has been developed in Safety Assessment 97-1058. The project has been classified as "(Other) Industrial" FEMP standard industrial hazard or construction activity. No additional safety analysis is required.

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4.4 EMERGENCY PREPAREDNESS

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The scope of emergency management programs and the extent of emergency planning and preparedness required are based upon and commensurate with the hazards and consequences associated with the site. A safety evaluation will be developed that will identify any additional emergency preparedness measures necessary to ensure the safety standards of FDF and DOE are maintained.

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The S&H Representative is responsible for project activity compliance with the site Emergency Preparedness Program. FDF maintains the necessary emergency plans and procedures to adequately define the emergency management program, provide guidance for all emergency responders (including employees), ensure adequate performance for critical systems, and meet regulatory requirements.

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Personnel will implement the requirements set forth in EM-0010, Event Notification and Occurrence Reporting, for evaluating and reporting all reportable events and emergency events occurring within the project. EM-0010 establishes the mechanisms for consistent, timely reporting of events to DOE for immediate notifications to regulatory agencies.

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4.5 FIRE PROTECTION

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FDF Fire Protection will provide consultation and guidance regarding fire protection and Life Safety Issues. As appropriate, Fire Protection provides necessary emergency response personnel and equipment for emergencies which could adversely affect people, property, or the environment. The FEMP Fire Protection functional area shall provide guidance to ensure that fire hazard issues are properly addressed and proper safeguards are in place for all activities associated with the Paddys Run Embankment Stabilization Project.

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The S&H representative assigned to this project is responsible for integration and compliance with fire protection requirements as defined in PL-3020, FEMP Emergency Plan, and in RM-0013, Fire Protection Requirements Manual.

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5.0 ORGANIZATIONAL RESPONSIBILITIES

The governing document for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions at the FEMP is the Amended Consent Agreement (EPA 1991) between DOE and Region V of the EPA. As such, ultimate project management responsibility lies with those two entities. The DOE is the lead agency responsible for CERCLA activities at the FEMP.

Within each agency, various organizations and offices have been delegated specific program responsibilities. The DOE-FEMP Operable Unit 5 Team Leader will provide the overall DOE programmatic direction for the project.

The FDF SCEP will provide the overall project management and technical guidance to the FDF Project Team. The Project Team will provide technical, regulatory, and administrative input required for the project, under the direction of the FDF Area Project Manager (APM). The project organization is shown in Figure 5-1.

The roles and responsibilities for these groups within SCEP are presented below.

5.1 PROJECT MANAGEMENT

Paddys Run Embankment Stabilization - Phase II will not require a Standard Startup Review as established in RM-0025, the "Pre-Operational Assessment Program Requirements Manual." The work involved in conducting Phase II will be conducted under established construction procedures and occupational safety and health requirements.

5.1.1 SCEP Project Director

The SCEP Project Director reports directly to the Vice President of the Soil and Water Projects Division. The Project Director provides guidance and a point of interface for all of the APMs, and serves as the primary contact for the SCEP with the DOE and the regulatory agencies. The Project Director ensures that activities related to the project are consistent with the SEP (DOE 1997a).

5.1.2 Area Project Manager

The Area Project Manager (APM) for Paddys Run Embankment Stabilization Project oversees and manages the project and has overall responsibility to complete the project scope within budget and schedule parameters. Specific responsibilities of the APM include:

- Providing administrative and technical direction
- Providing project staffing through SCEP
- Monitoring performance (scope, schedule, and budget)
- Providing project quality.

5.1.3 Project Controls and Document Administration/Liaison

Project Support and Administration coordinates and produces all documents. Specific responsibilities that are pertinent to the project include:

- Interfacing with Engineering/Construction Document Control (ECDC)
- Managing project documents
- Managing project document reviews, including the review/comment/response process.

The Project Controls group provides the APM with cost and schedule information for all accounts within the project. Cost account for all aspects of the project is 5CPR. Work breakdown structure designation has been defined as 2.1.2.E.E. Specific responsibilities include ensuring cost and schedule requirements are defined, planned, monitored and maintained against an integrated baseline so that performance can be measured and reported consistent with overall commitments, budget, and available funding.

5.1.4 Silos Project

The Silos Project Coordinator provides the conduit of information exchange between the Paddys Run Embankment Stabilization Project and the Silos Project.

5.2 PRIMARY TECHNICAL AREAS

The primary technical areas for the project are:

- Engineering
- Construction
- Characterization

- Quality Assurance
- Waste Disposition.

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5.2.1 Project Engineering

The Project Engineer (PE) ensures that the project complies with site engineering procedures. The PE ensures that requirements from other functional areas, shown in Figure 5-1, are considered and incorporated into the design. The PE also serves as the primary contact and liaison with the Architect/Engineer (A/E). Additionally, the PE reviews the Construction Traveler package to ensure the design is correctly presented in the construction scope. The PE also reviews the daily field logs maintained by the Construction Coordinator. Prior to construction completion, the PE will ensure a survey is conducted to provide the as-built boundary and cross-sections of riprap installed for future monitoring.

The A/E for conceptual/preliminary engineering support is being provided through Brown and Root Environmental with FDF design oversight. Due to the simplicity of the design, it is not anticipated that A/E services will be needed in any great extent to process Requests for Clarification of Information (RCIs) and Design Change Notices (DCNs). All design sketches produced to support riprap installation will be controlled.

5.2.2 Construction Management

The Construction Manager (CM) is responsible for the overall implementation of the design during the construction phase of the project. During design, the CM provides input to the design concerning constructability. The CM ensures that construction progresses according to site procedures.

The Construction Planner is responsible for generating the construction scope of the work to the field workers through the generation of the field document known as a Construction Traveler package. Additionally, the planner ensures all S&H requirements determined by the S&H representative are placed in the Traveler. The Construction Planner will submit the Traveler to the PE for review to ensure that the construction scope is adequately defined to reflect the design.

The Construction Contract Manager (CCM) assists the CM in managing construction projects. Additionally, the CCM provides the requisition authorizing funding for a Task Order to release the Construction Support Contractor (CSC). The CCM is the FDF administrative representative under

final authority of the CM, and approves or provides the CSC with such information as craft requisition forms, quantity and type of craft disciplines, assignment of craft supervisors, and review and approval of craft time sheets.

The Construction Coordinator (CC) is the field contact between the CSC and FDF project organization. The CC is responsible for contacting the responsible project representative in the event a question arises from the CSC. The CC is responsible for mobilizing other site organizations if a special need arises in the field (e.g., Emergency Communications Center, Security, Utility Engineer, etc.), and also coordinates with other field CCs to minimize interference to adjacent projects or with supervisors of adjacent operating systems. The CC submits the daily field logs to the PE for engineering review. Because no security access point is established from Paddys Run Road, the CC will be responsible to contact the Emergency Communications Center (ECC) prior to and at the conclusion of each work day. Information to be provided includes number of personnel in the area and a radio number for the ECC to contact in the field.

The Construction Engineer ensures that the work defined in the Construction Traveler and performed by the CSC is acceptable and completed.

The CSC provides labor to the site to perform work as required by the direction of the CM.

5.2.3 Characterization

During Phase I, the Characterization Manager is responsible for identifying the Area-Specific Constituents of Concern (ASCOCs), developing field sampling strategies, overseeing associated field program needs, and serving as the contact with the laboratory and Waste Disposition for the Paddys Run Embankment Stabilization Project. Should sampling be required in Phase II, the Characterization group will include a Data Manager, technical writers, analytical laboratory contacts, the field sampling team and surveyors.

5.2.4 Quality Assurance

The Quality Assurance (QA) representative provides oversight of quality assurance/quality control (QA/QC) activities during design, characterization, waste disposition, and construction. The QA representative will monitor and provide support to the project to ensure compliance with FEMP

requirements and procedures. The QA representative has stop-work authority if quality concerns go unresolved.

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5.2.5 Waste Disposition

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The Waste Disposition representative provides project support by preparing PWID forms, defining material tracking logs, providing technical direction and oversight for waste stream segregation and management, preparing field tracking logs and OSDF manifests, and preparing waste stream profiles.

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The Waste Disposition Field Coordinator assists the Waste Disposition representative in the above listed areas. Additionally the Coordinator works with the CC and CM, the project Characterization Lead, and the Waste Management and Technology organization for handling and disposition of waste streams.

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5.3 FUNCTIONAL SUPPORT

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Section 4.0 describes the roles and responsibilities of the Occupational S&H, Radiological Control (or Engineering), NSS, Emergency Preparedness, and Fire Protection functional areas. These functional areas will not be repeated in this section. Figure 5-1 reflects the project organization during the design phase. When the construction phase begins, Occupational S&H and its sub-areas along with Radiological Control will work directly with Construction Management on a day-to-day basis.

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The Environmental Compliance representative is responsible for ensuring compliance with and identifying ARARs and substantive permitting requirements. The Environmental Compliance representative will conduct an environmental ALARA review and identify project specific environmental controls and monitoring to ensure incorporation into construction. The Environmental Compliance representative coordinates with internal and external groups, including regulatory agencies, regarding regulatory issues.

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The Natural and Cultural Resources representative is responsible for ensuring that potential archaeological and historic sites are assessed and properly identified within the project work area. The Natural and Cultural Resources representative will also assess the potential natural resource damages for consideration during design. Additionally, the Natural and Cultural Resources representative will

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ensure the design is consistent with natural resource regulations and the future site natural restoration planning.

5.4 CONTRACTOR PROCUREMENT AND MANAGEMENT

The Contractor is anticipated to be the site's CSC for the following reasons:

- The urgent nature of implementing the design
- The project is small
- The potential for a changed condition during the course of construction that would result in increased radiological postings, additional site worker training, unforeseen delays (i.e., wet weather flow within the stream bed).

Therefore, a task order and requisition for services will be issued to the CSC. There will be no need for a subcontractor bid and award. The CSC will be managed according to FDF Site Procedure CT-3.7.1, Construction Support Contract Management.

5.5 CONTINGENCY MANAGEMENT

5.5.1 Weather

The potential for stream flows within Paddys Run during construction increases with the approach of late winter and spring. Work will be facilitated by the riprap bridge during low stream flows. However, at the higher stream flow predicted to be encountered above the one-year storm, work will be suspended until the water level lowers.

5.6 RECORDS MANAGEMENT

All project-specific records and documents, with the exception of construction drawings and specifications, will be managed by the Document Administrator/Liaison until they are turned over to ECDC for final disposition in the project record. The Paddys Run Embankment Stabilization Project is Project Number 20540. This number is identified on all project-related documents.

Engineering documents such as Conceptual Design Report and Design Sketches will be controlled by ECDC per FDF Engineering Procedure ED-12-5001, Centralized Control of Project Documents. Any changes to these engineering documents will be controlled through ECDC per FDF Engineering Procedure ED-12-5002, Engineering Design Change Processes. As a record of the riprap construction,

a survey will be conducted locating the final riprap installation and will be incorporated into the design sketches using FDF Engineering Procedure ED-12-6002, As-Built Drawings. Project Closeout will conform to the FDF Engineering Procedure ED-12-9004, Project Closeout.

Construction activities will be recorded on Daily Activity Reports per FDF Construction Procedure CT-3.3.1, Daily Activity Reports. Additionally, construction progress will be recorded per FDF Procedure CT-3.3.4, Progress Photos and Videos. Progress photos will be taken monthly and video taken weekly. All of the above construction-related information will be turned over to the ECDC for inclusion in the project record.

Analytical data from previous project area soil sampling and real-time measurements will be maintained in the Sitewide Environmental Database. Sampling field logs and Project Specific (Sampling) Plans with their associated variances, will be maintained and controlled through ECDC.

5.7 QUALITY ASSURANCE

The Quality Assurance Job-Specific Plan (QAJSP) for the Paddys Run project is the SEP Quality Assurance Plan (Appendix E of the SEP; DOE 1997a). The QAJSP identifies the QA programmatic requirements from the FDF Quality Assurance Program Description, RM-0012, that are applicable and SCEP specific. Should any sampling be required, the sampling activities will be conducted in accordance with the Sitewide CERCLA Quality Assurance Plan (SCQ; DOE 1993).

The Project Manager is ultimately responsible for project quality and has the authority to implement the necessary QA/QC requirements to assure compliance to design and QAJSP criteria. The QA representative will verify conformance to program documents and determine acceptability of materials to design specifications. Both the Project Manager and QA must approve the turnover punch list at project completion. All QA/QC issues must be communicated to the Project Manager and the Construction Manager for prompt resolution. Documented nonconformances identified in audits, surveillances, and inspections will be addressed to the Project Manager.

Inspection of materials will include the geotextile to manufacturer specifications, riprap rock to ODOT requirements, and typical dimensions/slope of riprap placement to design drawings. Inspections of

materials must be completed prior to material placement. Additionally, the support project activities in the subcontract task plan will be assessed.

Field changes to project requirements will be documented and become part of the project record. All QA/QC documentation will be considered QA records. Verification documentation of project activities may include videos and/or photographs.

External assessments may include regulatory and FDF audits or surveillances not performed by project designated QA. Such activities should be coordinated with the Project Manager, Construction Manager, and project QA.

5.8 INTEGRATION WITH OTHER FEMP ACTIVITIES

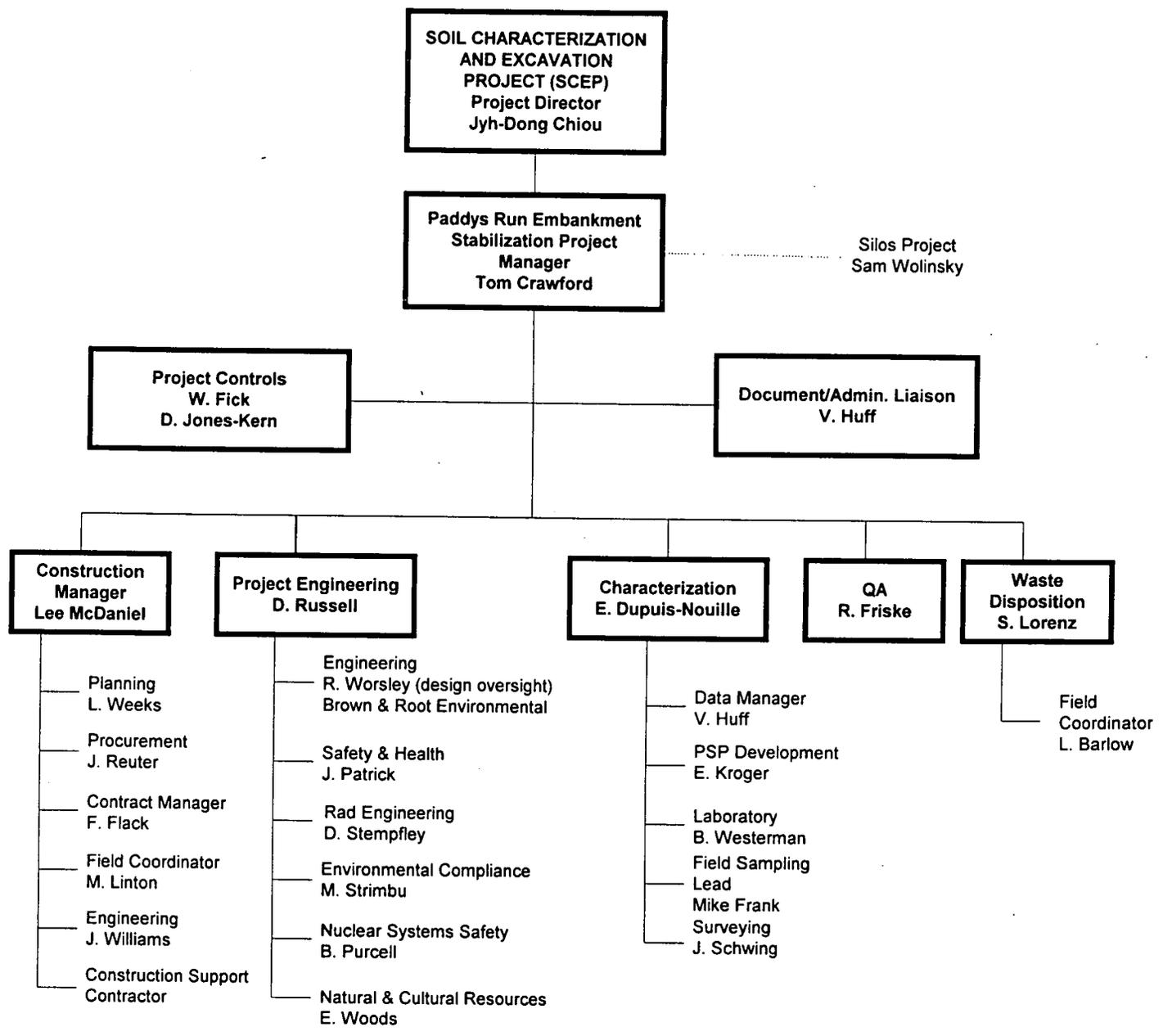
Only the Silos Project has been identified as a point of integration outside the SCEP. The Paddys Run Embankment Stabilization Project includes representatives from the Silos Project during status meetings and design reviews. The primary concern is to ensure the design of the embankment stabilization will not impact plans for K-65 Silos remediation. Additionally, prior to the movement of any equipment or personnel through the K-65 Silos area, the Silos Project is notified.

5.9 SCHEDULE

Submit Conceptual Design Report to OEPA	11/20/97	20
Submit Conceptual Design Report to EPA	11/25/97	21
Submit Work Plan to EPA and OEPA	12/09/97	22
Completion of Draft Design Sketches	12/17/97	23
Completion of Construction Scope of Work and Traveler	12/29/97	24
Construction Mobilizes	01/05/97	25
End Construction	02/27/97	26

These are estimated dates for a fasttrack construction schedule and may be affected by weather or other unforeseen circumstances. These dates are not enforceable milestones under the Amended Consent Agreement (EPA 1991).

Figure 5-1 Functional Organizational Chart



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APPENDIX A
DATA SUMMARY REPORT FOR PADDYS RUN
EMBANKMENT STABILIZATION PROJECT

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1.0 INTRODUCTION

A portion of the Paddys Run eastern stream bank was recently discovered to have collapsed into the stream bed along the embankment directly west of the silos. The collapse also caused a large tree root and lysimeter to fall from the top of the embankment. Because the collapse was located so close to the Operable Unit 4 Silos area, an interim action is being performed to stabilize the bank in that area. This area is part of Soil Remediation Area 7 in the Sitewide Excavation Plan (SEP; DOE 1997a). Details of this interim action are provided in the Paddys Run Embankment Stabilization Work Plan.

A sampling and analysis program was developed for the collapsed soil area in Paddys Run to support the embankment stabilization project. The primary objective for this sampling was to determine if the collapsed soil could meet the on-site waste acceptance criteria (WAC) and be disposed in the On-Site Disposal Facility (OSDF). Analysis was conducted for the Area 7 constituents of concern (COCs) relative to on-site WAC attainment only. These area-specific COCs (ASCOCs) for on-site WAC attainment include total uranium and technetium-99. As a secondary objective, samples were also collected and analyzed to determine whether the soil and debris exhibited the hazardous waste toxicity characteristic under the Resource Conservation and Recovery Act (RCRA) for lead and chromium in the northern portion of the collapsed soil (shown as Segment 1 in Figure 1), because lead and chromium were detected in boring 11138 during RI/FS sampling and analysis.

2.0 SAMPLING AND ANALYSIS PROGRAM

The scope of the sampling program was limited to the objectives described above, while maintaining a safe work environment. The FRLs and on-site WAC for the ASCOCs being considered for the purposes of this investigation are listed in Table 2. The sampling plan is identified as a Project Specific Plan - WAC Attainment of Collapsed Soil in Paddys Run (DOE 1997b).

TABLE 1
FRLS AND WAC FOR PADDYS RUN
AREA-SPECIFIC CONSTITUENTS OF CONCERN

Constituent	OSDF Waste Acceptance Criteria	Final Remediation Levels
Technetium-99	29.1 pCi/g	30 pCi/g
Total Uranium	1030 mg/kg	82 mg/kg
Radium-226	Not Applicable	1.7 pCi/g

A radiation survey was conducted in September 1997 (see Section 2.1) for the presence of radiation above background. Above-background radiation levels indicated that special considerations must be given for health and safety concerns for sampling and excavation activities in the southern portion of the collapsed soil, where a large tree root mat and lysimeter had fallen from the top of the embankment.

On October 8, 1997, a field meeting and an HPGe sampling survey was held in the area with the OEPA, DOE, and Fluor Daniel Fernald. The purpose of the meeting was for the OEPA to split soil samples with DOE for separate analysis. A HPGe was set up in the area of the tree root mat, which is located in Segment 2 as part of the field screening process (see Section 2.1) to address the radiological scanning concerns. The HPGe readings (see Section 2.1) indicated that radium-226 was present above safe working conditions. Subsequently, 35 cubic yards of soil was excavated. Field screening with the HPGe was then repeated, showing that conditions were sufficient for workers to remove the fallen tree, root mass, and lysimeter. Physical sample locations 19 through 22 were collected that day from that excavated area (Figure 2). The remaining soil sample locations, including sample locations 1 through 18 and 23, were collected on October 22. Split sample locations were also collected by the OEPA on October 8, 1997.

2.1 Field Screening Process

The entire area of concern in Paddys Run was scanned with a pancake frisker prior to the collection of physical soil samples or tree removal. These results (Addendum A) indicated that the tree root mat and surrounding soil in Segment 2 (Figure 2) exhibited in excess of 100 corrected counts per minute (ccpm) of beta/gamma emitting radiation. Alpha emissions in this area were also above acceptable health and

safety levels (60 ccpm). This detectable contamination was quantified using a HPGe which indicated that radium-226 was present at concentrations ranging from 94 pCi/g (detector height of 1 meter) to 140 pCi/g (detector height of 31 cm), as shown in Table 2.

TABLE 2
CONCENTRATIONS OF RADIUM-226 USING THE HPGe AT THE TREE ROOT MAT

Time of Reading	Detector Height	
	1 meter	31 cm
Pre-Excavation Concentration (pCi/g)	94	140
Post-Excavation Concentration (pCi/g)	29	x

x - No analyses conducted

Thirty-five cubic yards of soil was excavated to meet the worker health and safety requirements in the vicinity of the high radium readings. Excavation was halted when beta/gamma emissions were determined to be below 100 ccpm (Addendum B). The post-excavation readings for radium-226 are shown in Table 2. The full suite of analytical results from the HPGe are presented in Table 3, including analysis for thorium-232, which was detected below the soil FRL of 1.5 pCi/L.

Fixed contamination was found above background on a 4' x 10' metal lid lying in Segment 1 (Addendum A). The lid was removed for disposal.

2.2 Physical Sampling

Physical sample collection was conducted in accordance with the Project-Specific Plan for WAC Attainment of Collapsed Soil in Paddys Run (DOE 1997b), and associated variances after the field screening processes. Samples were collected at a depth of 6 to 12 inches unless circumstances such as steep slopes caused concern for health and safety practices. In these instances samples were collected from 0 to 6 inches, as indicated on Table 4. Figure 2 shows both planned and actual sample locations. Sample locations 1 through 5, 7 through 14, and 19 through 22 were randomly located within the collapsed soil. Sample locations 6 and 15 through 18 were biased according to the estimated location of the original Boring 11138 which was drilled during the Operable Unit 5 remedial investigation. These sample locations were selected to bound the area surrounding a sample from Boring 11138 that

indicated that chromium and lead are potentially present above RCRA toxicity characteristic concentrations. Sample 23 was added as a new sample location in the field, and was placed beneath the location of the metal lid. Sample 6 was relocated in the field to collect a sample at the toe of the collapsed soil, although its locations still serves to bound any potential concerns under RCRA for lead or chromium.

3.0 LABORATORY RESULTS

All samples were analyzed for technetium-99 and total uranium using totals analysis (Table 4). Analysis indicates that technetium-99 is present below concentrations of 0.45 pCi/g, which is below the FRL of 30 pCi/g and the on-site WAC of 29 pCi/g.

All total uranium samples contained concentrations less than 19.3 ppm, which is below the FRL of 82 ppm and the on-site WAC of 1030 ppm.

Soil samples (1 through 9, 15 through 18, and 23 located in Segment 1) were also analyzed for lead and chromium using the Toxicity Characteristic Leaching Procedure (TCLP). TCLP analysis indicates that neither lead nor chromium were present at concentrations exceeding the toxicity characteristic regulatory threshold of 5 mg/L (i.e., 500.0 µg/L) for each of these constituents. Chromium concentrations range from 2.9 to 11.6 µg/L, and lead concentrations range from 1.7 to 2.0 µg/L.

Samples 10-14 from Segment 2 were analyzed for radium-226 (Figure 2). Soil samples were taken for radium-226 analysis from the tree root mat before its removal and of the soil under the root mat after its removal. The radium-226 samples taken before excavation of the tree root mat indicate levels of radium-226 ranging from 80 to 170 pCi/g. Post-excavation samples show much lower concentrations, ranging from 0.62 to 21 pCi/g. Two of the post-excavation samples exceeded the FRL of 1.7 pCi/g; these include sample locations 12 and 13, at concentrations of 21 pCi/g and 4.7 pCi/g, respectively.

4.0 CONCLUSIONS

Analytical laboratory results of the sample locations taken during Phase I of the Paddys Run Embankment Stabilization Project indicate that all materials excavated from Paddys Run meet the on-site WAC for technetium-99 and total uranium (Table 4). There is no on-site WAC for radium-226

or thorium-232, and therefore, sample analysis for WAC attainment was not needed. In addition, the collapsed soil does not exhibit RCRA toxicity characteristic levels for lead or chromium (Table 4).

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Only radium-226 was detected in post-excavation soils at above FRLs. Thorium-232 was not detected above the FRL of 1.5 pCi/g using the HPGe after excavation in the vicinity of the root mat.

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Laboratory analysis for total uranium and technetium-99 indicated concentrations below their respective FRLs, as shown on Tables 2 and 4. Radium-226 was detected using laboratory analyses below the FRL of 1.7 pCi/g in Segment 2 except in Samples 12 and 13, which were found at 12 pCi/g and 4.7 pCi/g, respectively, after excavation of the 35 cubic yards of soil. Sample location 23, which was positioned beneath the location of the metal lid showed the highest concentration of total uranium at 19.3 ppm.

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TABLE 3
HPGE RESULTS FOR PADDYS RUN EMBANKMENT STABILIZATION PROJECT

SAMPLE NUMBER	NORTHING / EASTING	DATE	DET HT. (M)	PARAMETER	UNCORRECTED HPGE RESULT
PRFTA-1-G	480466.32 1346751.61	10/8/97	1	Uranium-235	3.8 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/8/97	1	Uranium, Total	17.0 ppm
PRFTA-1-G	480466.32 1346751.61	10/8/97	1	Thorium-232	0.6 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/8/97	1	Radium-226	33.7 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/8/97	0.31	Uranium-235	0.5 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/8/97	0.31	Uranium, Total	19.7 ppm
PRFTA-1-G	480466.32 1346751.61	10/8/97	0.31	Thorium-232	0.2 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/8/97	0.31	Radium-226	0.2 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/9/97	1	Uranium-235	0.3 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/9/97	1	Uranium, Total	11.5 ppm
PRFTA-1-G	480466.32 1346751.61	10/9/97	1	Thorium-232	0.1 pCi/g
PRFTA-1-G	480466.32 1346751.61	10/9/97	1	Radium-226	0.1 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/8/97	1	Uranium-235	0.4 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/8/97	1	Uranium, Total	14.1 ppm
PRFTA-2-G	480453.41 1346746.67	10/8/97	1	Thorium-232	0.1 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/8/97	1	Radium-226	0.1 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/9/97	1	Uranium-235	0.4 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/9/97	1	Uranium, Total	12.4 ppm
PRFTA-2-G	480453.41 1346746.67	10/9/97	1	Thorium-232	0.1 pCi/g
PRFTA-2-G	480453.41 1346746.67	10/9/97	1	Radium-226	9.8 pCi/g

12/8/97 4:07:27 PM

TABLE 4 - PADDYS RUN PHYSICAL SAMPLING RESULTS

SAMPLE ID	SAMPLE DEPTH IN FT	SAMPLE DATE	NORTHING / EASTING	PARAMETER	LAB QUAL / RESULT	MDL	METHOD
A7PRCS-1-2-M	0.5 - 1	10/22/97 2:31:00 PM	480563.102 1346791.731	Chromium	B 3.9		6523/TCLP-CR
	0.5 - 1			Lead	U 1.7		6517/TCLP-PB - GFAA (SW846)
A7PRCS-1-2-R	0.5 - 1			Moisture Content	14.4		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Technetium-99	U 0.015	0.78	C97-0054/TC-99
	0.5 - 1			Uranium, Total	1.92		C97-0013/URANIUM/ICP-MS
A7PRCS-2-2-M	0.5 - 1	10/22/97 10:05:00 AM	480548.181 1346794.543	Chromium	U 2.9		6523/TCLP-CR
	0.5 - 1			Lead	U 1.7		6517/TCLP-PB - GFAA (SW846)
A7PRCS-2-2-R	0.5 - 1			Moisture Content	17.4		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Technetium-99	U -0.4	0.71	C97-0054/TC-99
	0.5 - 1			Uranium, Total	3.27		C97-0013/URANIUM/ICP-MS
A7PRCS-3-1-M	0 - 0.5	10/22/97 2:01:00 PM	480536.113 1346805.622	Chromium	U 2.9		6523/TCLP-CR
	0 - 0.5			Lead	U 1.7		6517/TCLP-PB - GFAA (SW846)
A7PRCS-3-1-R	0 - 0.5			Moisture Content	7.9		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Technetium-99	U -0.29	0.85	C97-0054/TC-99
	0 - 0.5			Uranium, Total	2.54		C97-0013/URANIUM/ICP-MS
A7PRCS-4-1-M	0 - 0.5	10/22/97 2:14:00 PM	480521.419 1346792.647	Chromium	3		6523/TCLP-CR
	0 - 0.5			Lead	U 1.7		6517/TCLP-PB - GFAA (SW846)
A7PRCS-4-1-R	0 - 0.5			Moisture Content	13.9		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Technetium-99	U -0.22	0.87	C97-0054/TC-99
	0 - 0.5			Uranium, Total	5.32		C97-0013/URANIUM/ICP-MS
A7PRCS-5-1-M	0 - 0.5	10/22/97 2:03:00 PM	480516.049 1346802.352	Chromium	U 2.9		6523/TCLP-CR
	0 - 0.5			Lead	B 2		6517/TCLP-PB - GFAA (SW846)
A7PRCS-5-1-R	0 - 0.5			Moisture Content	11		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Technetium-99	U -0.023	0.7	C97-0054/TC-99
	0 - 0.5			Uranium, Total	4.64		C97-0013/URANIUM/ICP-MS
A7PRCS-6-3-M	1 - 1.5	10/23/97 2:06:00 PM	480507.07 1346781.81	Chromium	4.6		6523/TCLP-CR
	1 - 1.5			Lead	U 1.7		6517/TCLP-PB - GFAA (SW846)
A7PRCS-6-3-R	1 - 1.5			Moisture Content	16.7		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	1 - 1.5			Technetium-99	U -0.43	0.87	C97-0054/TC-99
	1 - 1.5			Uranium, Total	2.91		C97-0013/URANIUM/ICP-MS

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TABLE 4 (Continued)

SAMPLE ID	SAMPLE DEPTH IN FT	SAMPLE DATE	NORTHING / EASTING	PARAMETER	LAB QUAL / RESULT	MDL	METHOD
A7PRCS-7-2-M	0.5 - 1	10/22/97 2:38:00 PM	480483.799 1346770.772	Chromium		2.9	6523/TCLP-CR
A7PRCS-7-2-M-D	0.5 - 1			Chromium		3	6523/TCLP-CR
A7PRCS-7-2-M	0.5 - 1			Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)
A7PRCS-7-2-M-D	0.5 - 1			Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)
A7PRCS-7-2-R-D	0.5 - 1			Moisture Content		16.2	5507/SAMPLE PREP, DRY & GRIND,(LAB)
A7PRCS-7-2-R	0.5 - 1			Moisture Content		17.5	5507/SAMPLE PREP, DRY & GRIND,(LAB)
A7PRCS-7-2-R-D	0.5 - 1			Technetium-99	U	-0.28	1.1 C97-0054/TC-99
A7PRCS-7-2-R	0.5 - 1			Technetium-99	U	-0.24	0.71 C97-0054/TC-99
A7PRCS-7-2-R-D	0.5 - 1			Uranium, Total		4.34	C97-0013/URANIUM/ICP-MS
A7PRCS-7-2-R	0.5 - 1			Uranium, Total		4.92	C97-0013/URANIUM/ICP-MS
A7PRCS-8-2-R	0.5 - 1	10/22/97 10:46:00 AM	480494.917 1346775.654	Moisture Content		12.5	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Technetium-99	U	-0.26	0.83 C97-0054/TC-99
	0.5 - 1			Uranium, Total		12.4	C97-0013/URANIUM/ICP-MS
A7PRCS-9-1-M	0 - 0.5	10/22/97 2:07:00 PM	480494.55 1346790.404	Chromium		3.8	6523/TCLP-CR
	0 - 0.5			Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)
A7PRCS-9-1-R	0 - 0.5			Moisture Content		13.5	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Technetium-99	U	0.45	0.96 C97-0054/TC-99
	0 - 0.5			Uranium, Total		12.3	C97-0013/URANIUM/ICP-MS
A7PRCS-10-2-R	0.5 - 1	10/22/97 2:54:00 PM	480468.433 1346763.204	Moisture Content		10.6	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Radium-226		1.2	0.21 6S3024/GAMMA SPEC.RA-226
A7PRCS-11-2-R	0.5 - 1	10/22/97 2:54:00 PM	480464.143 1346750.164	Moisture Content		5.2	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Radium-226		0.62	0.19 6S3024/GAMMA SPEC.RA-226
A7PRCS-12-2-R	0.5 - 1	10/22/97 11:04:00 AM	480447.643 1346750.38	Moisture Content		13.3	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Radium-226		21	0.36 6S3024/GAMMA SPEC.RA-226
A7PRCS-13-2-R	0.5 - 1	10/22/97 3:03:00 PM	480442.034 1346748.266	Moisture Content		11.7	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Radium-226		4.7	0.33 6S3024/GAMMA SPEC.RA-226
A7PRCS-14-2-R	0.5 - 1	10/22/97 3:07:00 PM	480442.71 1346737.245	Moisture Content		7.7	5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0.5 - 1			Radium-226		1.2	0.23 6S3024/GAMMA SPEC.RA-226

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TABLE 4 (Continued)

SAMPLE ID	SAMPLE DEPTH IN FT	SAMPLE DATE	NORTHING / EASTING	PARAMETER	LAB QUAL / RESULT	MDL	METHOD		
A7PRCS-15-1-M	0 - 0.5	10/22/97 10:22:00 AM	480515.244	1346792.715	Chromium		3.5	6523/TCLP-CR	
	0 - 0.5				Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)	
A7PRCS-15-1-R	0 - 0.5				Moisture Content		10.7	5507/SAMPLE PREP, DRY & GRIND.(LAB)	
	0 - 0.5				Techneium-99	U	-0.52	0.78	C97-0054/TC-99
	0 - 0.5				Uranium, Total		6.7		C97-0013/URANIUM/ICP-MS
A7PRCS-16-1-M	0 - 0.5	10/22/97 10:22:00 AM	480510.365	1346792.775	Chromium	U	2.9	6523/TCLP-CR	
	0 - 0.5				Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)	
A7PRCS-16-1-R	0 - 0.5				Moisture Content		9.4	5507/SAMPLE PREP, DRY & GRIND.(LAB)	
	0 - 0.5				Techneium-99	U	-0.63	0.81	C97-0054/TC-99
	0 - 0.5				Uranium, Total		1.87		C97-0013/URANIUM/ICP-MS
A7PRCS-17-1-M	0 - 0.5	10/22/97 2:10:00 PM	480504.851	1346791.229	Chromium		2.9	6523/TCLP-CR	
	0 - 0.5				Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)	
A7PRCS-17-1-R	0 - 0.5				Moisture Content		10.1	5507/SAMPLE PREP, DRY & GRIND.(LAB)	
	0 - 0.5				Techneium-99	U	-0.65	0.82	C97-0054/TC-99
	0 - 0.5				Uranium, Total		4.46		C97-0013/URANIUM/ICP-MS
A7PRCS-18-1-M	0 - 0.5	10/22/97 2:05:00 PM	480510.031	1346803.928	Chromium	U	2.9	6523/TCLP-CR	
	0 - 0.5				Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)	
A7PRCS-18-1-R	0 - 0.5				Moisture Content		9.5	5507/SAMPLE PREP, DRY & GRIND.(LAB)	
	0 - 0.5				Techneium-99	U	-0.36	0.73	C97-0054/TC-99
	0 - 0.5				Uranium, Total		7.24		C97-0013/URANIUM/ICP-MS
A7PRCS-19-1-R	0 - 0.5	10/8/97 10:30:00 AM	480470.83	1346745.34	Cesium-137		0.29	0.03	6S3021/GAMMA SPECTROMETRY
	0 - 0.5				Moisture Content		18		5507/SAMPLE PREP, DRY & GRIND.(LAB)
	0 - 0.5				Potassium-40		16	0.64	6S3021/GAMMA SPECTROMETRY
	0 - 0.5				Radium-226		87	0.31	6S3021/GAMMA SPECTROMETRY
	0 - 0.5				Radium-226		87	0.31	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5				Radium-228		0.85	0.24	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5				Techneium-99	U	0.14	0.76	C97-0054/TC-99
	0 - 0.5				Thorium-232		0.85	0.24	6S3021/GAMMA SPECTROMETRY
	0 - 0.5				Uranium, Total		16	5.7	6S3021/GAMMA SPEC TOTAL U
	0 - 0.5				Uranium-235		3.6	0.28	6S3021/GAMMA SPECTROMETRY
	0 - 0.5				Uranium-238		5.3	1.9	6S3021/GAMMA SPECTROMETRY

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TABLE 4 (Continued)

SAMPLE ID	SAMPLE DEPTH IN FT	SAMPLE DATE	NORTHING / EASTING	PARAMETER	LAB QUAL / RESULT	MDL	METHOD	
A7PRCS-20-1-R	0 - 0.5	10/8/97 10:32:00 AM	480469.31 1346743.7	Cesium-137		0.26	0.05	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Moisture Content		23.2		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Potassium-40		16	0.84	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Radium-226		80	0.43	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5			Radium-226		80	0.43	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Radium-228		1.1	0.33	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5			Technetium-99	U	-0.046	0.77	C97-0054/TC-99
	0 - 0.5			Thorium-232		1.1	0.33	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Uranium, Total		20	2.8	6S3021/GAMMA SPEC TOTAL U
	0 - 0.5			Uranium-235		3.7	0.35	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Uranium-238		6.7	2.1	6S3021/GAMMA SPECTROMETRY
A7PRCS-21-1-R	0 - 0.5	10/8/97 10:34:00 AM	480467.41 1346745.6	Moisture Content		26.5		5507/SAMPLE PREP, DRY & GRIND,(LAB)
	0 - 0.5			Potassium-40		14	1.1	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Radium-226		93	0.42	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5			Radium-226		93	0.42	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Radium-228		0.67	0.22	6S3021/GAMMA SPEC.RA-226, RA-228
	0 - 0.5			Technetium-99	U	0.085	0.77	C97-0054/TC-99
	0 - 0.5			Thorium-232		0.67	0.37	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Uranium, Total		12	2.1	6S3021/GAMMA SPEC TOTAL U
	0 - 0.5			Uranium-235		4.3	0.07	6S3021/GAMMA SPECTROMETRY
	0 - 0.5			Uranium-238		4	0.69	6S3021/GAMMA SPECTROMETRY
	A7PRCS-22-1-R			0 - 0.5	10/8/97 10:36:00 AM	480475.34 1346751.12	Moisture Content	
0 - 0.5		Potassium-40		20			0.71	6S3021/GAMMA SPECTROMETRY
0 - 0.5		Radium-226		170			0.35	6S3021/GAMMA SPECTROMETRY
0 - 0.5		Radium-226		170			0.35	6S3021/GAMMA SPEC.RA-226, RA-228
0 - 0.5		Radium-228		0.85			0.26	6S3021/GAMMA SPEC.RA-226, RA-228
0 - 0.5		Technetium-99	U	-0.41			0.74	C97-0054/TC-99
0 - 0.5		Thorium-232		0.85			0.17	6S3021/GAMMA SPECTROMETRY
0 - 0.5		Uranium, Total		13			2.6	6S3021/GAMMA SPEC TOTAL U
0 - 0.5		Uranium-235		6.6			0.2	6S3021/GAMMA SPECTROMETRY
0 - 0.5		Uranium-238		4.4			0.86	6S3021/GAMMA SPECTROMETRY

000075

1132

TABLE 4 (Continued)

SAMPLE ID	SAMPLE DEPTH IN FT	SAMPLE DATE	NORTHING / EASTING		PARAMETER	LAB QUAL / RESULT	MDL	METHOD	
A7PRCS-23-1-M	0 - 0.5	10/22/97 2:18:00 PM	480504.51	1346783.41	Chromium		11.6	6523/TCLP-CR	
	0 - 0.5				Lead	U	1.7	6517/TCLP-PB - GFAA (SW846)	
A7PRCS-23-1-R	0 - 0.5				Moisture Content		15.7	5507/SAMPLE PREP. DRY & GRIND.(LAB)	
	0 - 0.5				Technetium-99	U	-0.17	0.76	C97-0054/TC-99
	0 - 0.5				Uranium, Total		19.3		C97-0013/URANIUM/ICP-MS

000076

1132

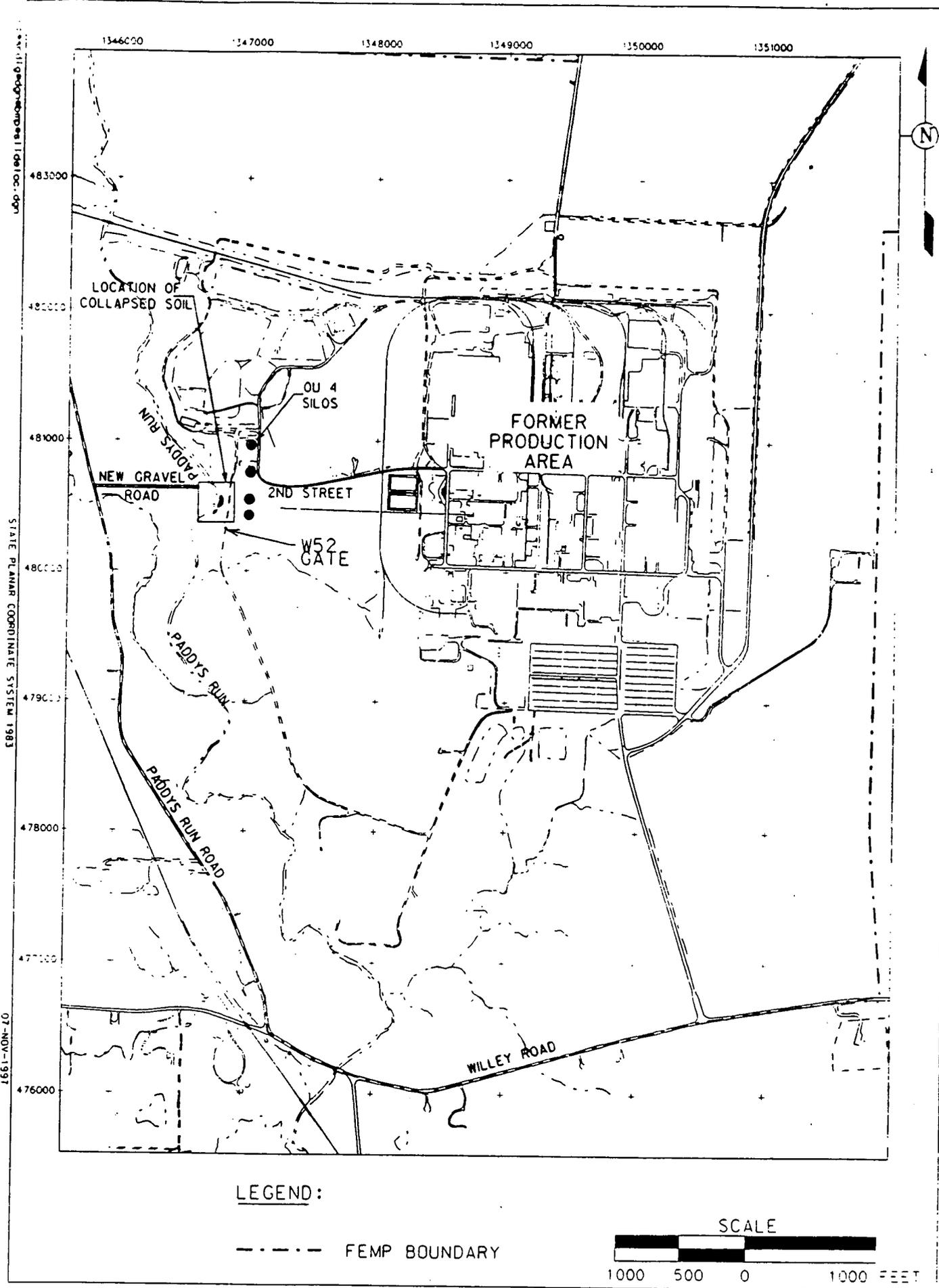


FIGURE 1 LOCATION OF COLLAPSED SOIL INTO PADDY'S RUN AT THE FEMP

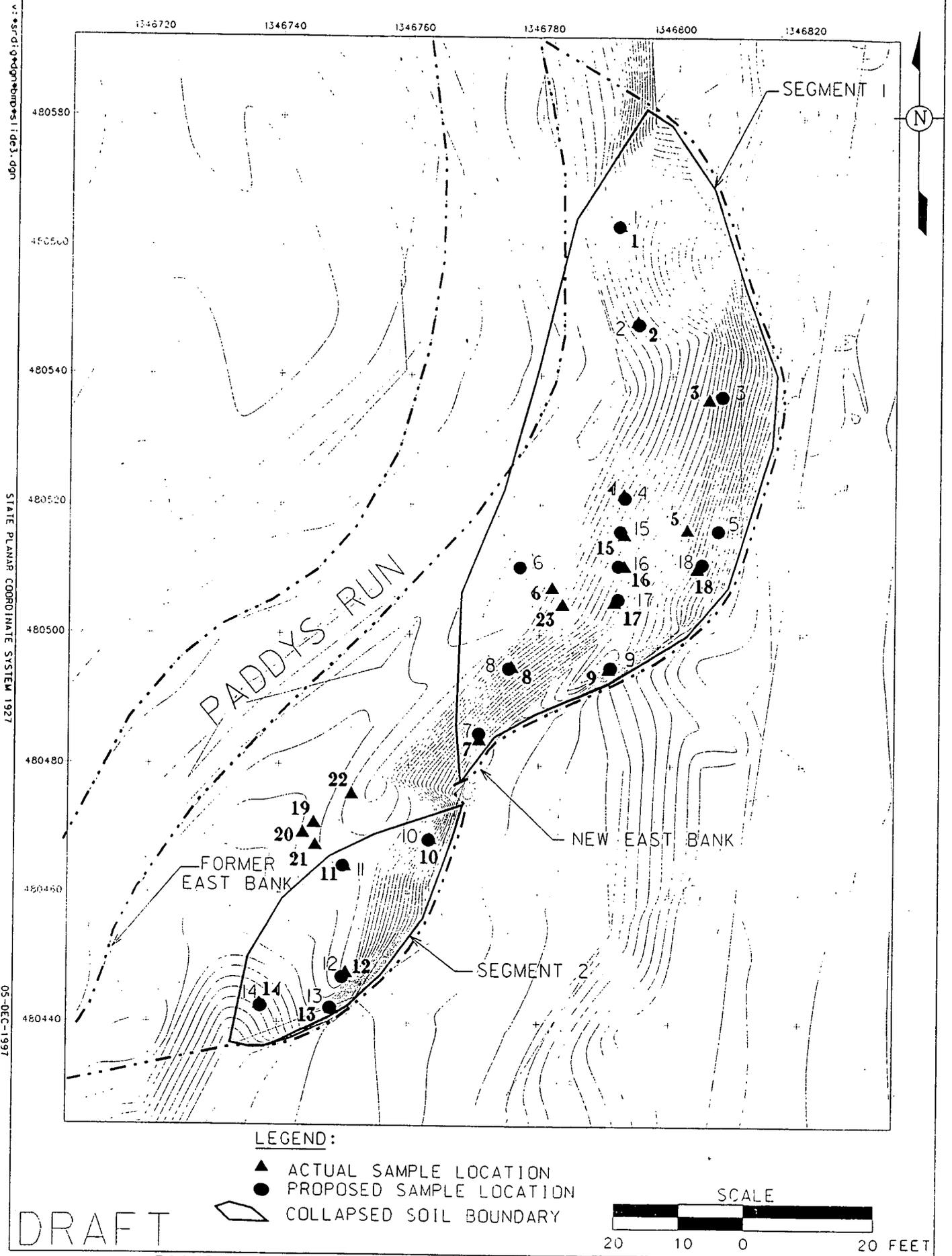


FIGURE 2. PROPOSED AND ACTUAL SAMPLE LOCATIONS IN PADDY'S RUN EMBANKMENT STABILIZATION PROJECT

ADDENDUM A
PRE-EXCAVATION FRISKER RESULTS



63175

FEMP

COVER SHEET

DOCUMENT TYPE RSR
 RWP
 ASR

SURVEY FOR RWP? YES
 NO

NAME J.D. KOZLOSKI

PAGE 1 OF 2

SIGNED [Signature]

LOCATION PADDYS RUN CREEK

LOCATION CODE

BADGE #

DATE

TIME

BLDG/GRID#

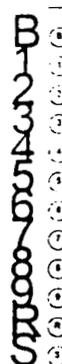
FLR

10143

09/18/97

14:45

G31B

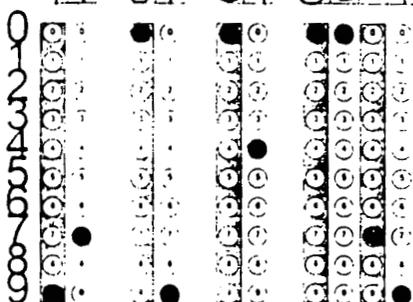


SURVEY NUMBER

RWP NUMBER

97-09-04-0079

-



COMMENTS Alpha survey of
Fallen tree roots/soil
in Paddys Run Creek
← N/A →

(UNCONTROLLED)
8/21/97

REVIEWER

BADGE



2719

DATE

9-22-97

000080

FEMP
RADIOLOGICAL SURVEY REPORT

NUMBER: 97-09-04-0079

DATE: 09/18/97

RCT BADGE #: 70143

PAGE: 2 of 2

REVIEWED BY

REVIEWER BADGE NO: 7719

MODEL	SERIAL NUMBER	TYPE (a, B, Y)	CALIBRATION - DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP. PERFORMANCE TEST SAT?	
								YES	NO
M3	86047	α	3/98	0	20	N/A	1200	X	N/A
M3	99345	B-8	1/98	80	30	N/A	3000	X	A

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (FT.)	DPM/100cm ² ALPHA		DPM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)					
			REMOVABLE (1)	FIXED PLUS REMOVABLE	REMOVABLE (1)	FIXED PLUS REMOVABLE	γ	β	γ	β		
			CONTACT		CONTACT		AT - FT.		AT - FT.			
1	SOIL NORTH SIDE	N/A	N/A	400	N/A	N/A						
2				<MDCR								
3				1200								
4	SOIL EAST SIDE			400								
5				1200								
6				1600								
7	SOIL TOP/SOUTH			1200								
8				1600								
9				2800								
10	SOIL WALKING SURF.			<MDCR								
11				<MDCR								
12				<MDCR								
13	SOIL REMOVED FROM ROOTS	N/A	N/A	N/A	N/A	3-15K						

Note (1): Values identified by an asterisk (*) indicate results are less than the calculated MDA (RC-RDA-010).



FEMP

COVER SHEET

1132

DOCUMENT TYPE RSR
 RWP
 ASR

SURVEY FOR RWP? YES
 NO

NAME J.D. KOZLOSKI

PAGE 1 OF 3

SIGNED J. Kozloski

LOCATION PADDYS RUN CREEK

LOCATION CODE

BADGE #

DATE

TIME

BLDG/GRID#

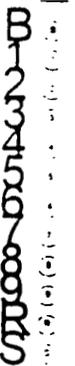
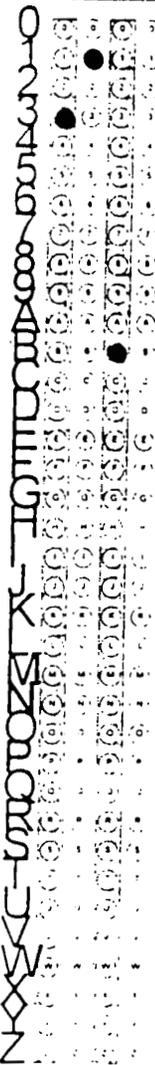
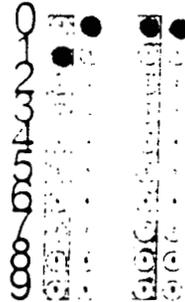
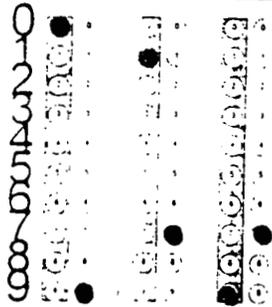
FLR

70143

09/17/97

10:00

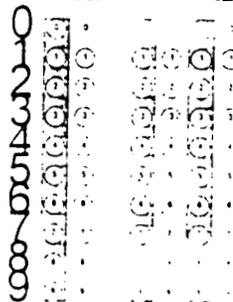
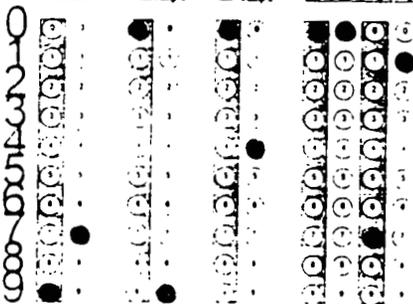
318



SURVEY NUMBER

RWP NUMBER

97-09-04-0071



UNCONTROLLED

COMMENTS

Survey of fallen

tree roots and soil

in PADDYS RUN CREEK

See

REVIEWER



BADGE

7710

DATE

9/18/97

1100

FEMP
RADIOLOGICAL SURVEY

NUMBER: 97-09-04-0071

DATE: 09/17/97

RCT BADGE #: 70143

PAGE: 2 of 3

REVIEWER: [Redacted]

REVIEWER BADGE NO: 7719

MODEL	SERIAL NUMBER	TYPE (α , β , γ)	CALIBRATION DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./ PERFORMANCE TEST SAT?	
								YES	NO
M3	97345	58	1/98	150	30	N/A	3000	X	N/A
N/A									

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (FT.)	DPM/100cm ² ALPHA		DPM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)				
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ	β	γ	β	
			(1)	(1)	(1)	(1)	CONTACT	CONTACT	AT _ FT.	AT _ FT.	
1	Soil/Roots North				78K						
2	↓ ↓				3-6K						
3	Soil/Roots East				3-9K						
4	↓ ↓				3-12K						
5	↓ ↓				3-30K						
6	↓ ↓				45-90K						
7	Soil/Grass/Woods				3-6K						
8	↓ ↓				3-9K						
9	↓ ↓				3K						
10	PVC Well Piping				<MDA						
11	Soil/Sand				3K						
12	↓ ↓				3-9K						
13	↓ ↓				3-6K						
14	Soil/Roots West				30-45K						
15	↓ ↓				45-90K						
N/A											

Note (1): Values identified by an asterisk (*) indicate results are less than the calculated MDA (RCRDA-010).

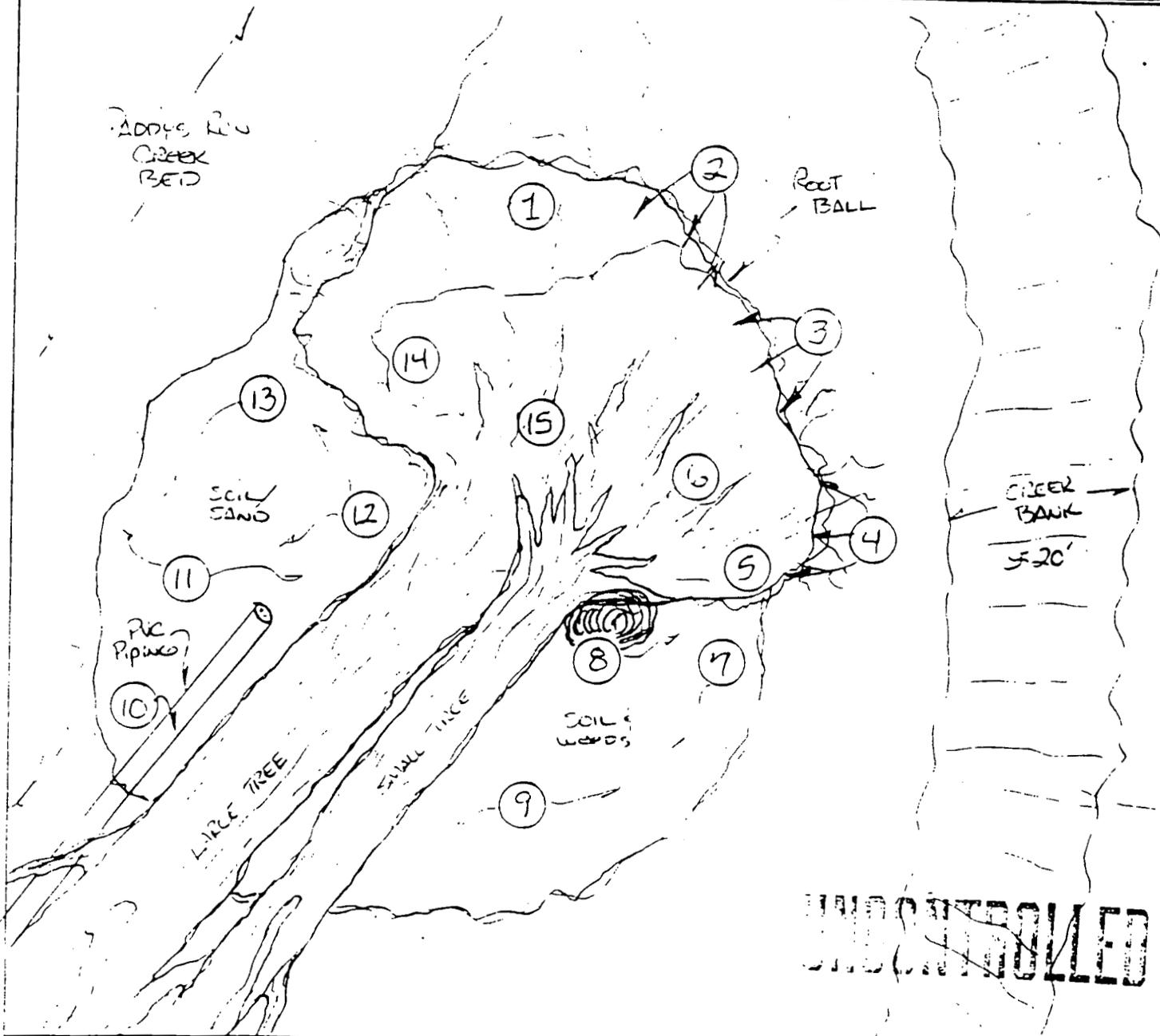
SUMMARY AND/OR SPECIAL REPORT FORM

LOCATION: PADDYS RUN CREEK

DATE: 09/17/97

DOCUMENT TITLE: DIRECT SCAN
SOIL SURVEY

LOG
SERIAL NUMBER: 97-09-04-0071



ENTERED BY

REVIEWED BY

PRINT NAME:

SIGNATURE/DATE)

09/17/97 70143

FEMP

COVER SHEET

DOCUMENT TYPE

- RSR
- RWP
- ASR

SURVEY FOR RWP?

- YES
- NO

NAME Mike VanDillen

PAGE 1 OF 3

SIGNED Mike VanDillen

LOCATION Paddy's Run Creek

LOCATION CODE

BADGE #	DATE	TIME	BLDG/GRID#	FLR
26746	09/09/97	10:10	6318	

SURVEY NUMBER

RWP NUMBER

77-19-24-0035

UNCONTROLLED
12/1/97

COMMENTS Survey of Paddy's Run Creek

BADGE
7719

DATE
9-9-97

8085

FEMP
RADIOLOGICAL SURVEY REPORT

NUMBER: 97-09-09-0035

DATE: 09-09-07	RCT BADGE #: 7646	PAGE: 2 OF 3
	REVIEWER BADGE NO: 7719	

MODEL	SERIAL NUMBER	TYPE (a, B, Y)	CALIBRATION DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP. PERFORMANCE TEST SAT?	
								YES	NO
Model S	97157	B S	FEB 98	FO	4/30	N/A	400/300	X	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (FT.)	DPM/100cm ² ALPHA		DPM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)						
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	Y	B	Y	B			
			CONTACT	CONTACT	AT	AT	FT.	FT.	FT.	FT.			
1	META OBJECT	N/A	N/A	N/A	<MDR	90K	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2						45K							
3						15K							
4	↓					21K							
5	Trace					9K							
6	↓					18K							
7	Green soil					<MDR							
8													
9													
10													
11													
12													

UNCONTROLLED

8 12/1/97

N

Note (1): Values identified by an asterisk (*) indicate results are less than the calculated MDA (RC-RDA-010).

SUMMARY AND/OR SPECIAL REPORT FORM

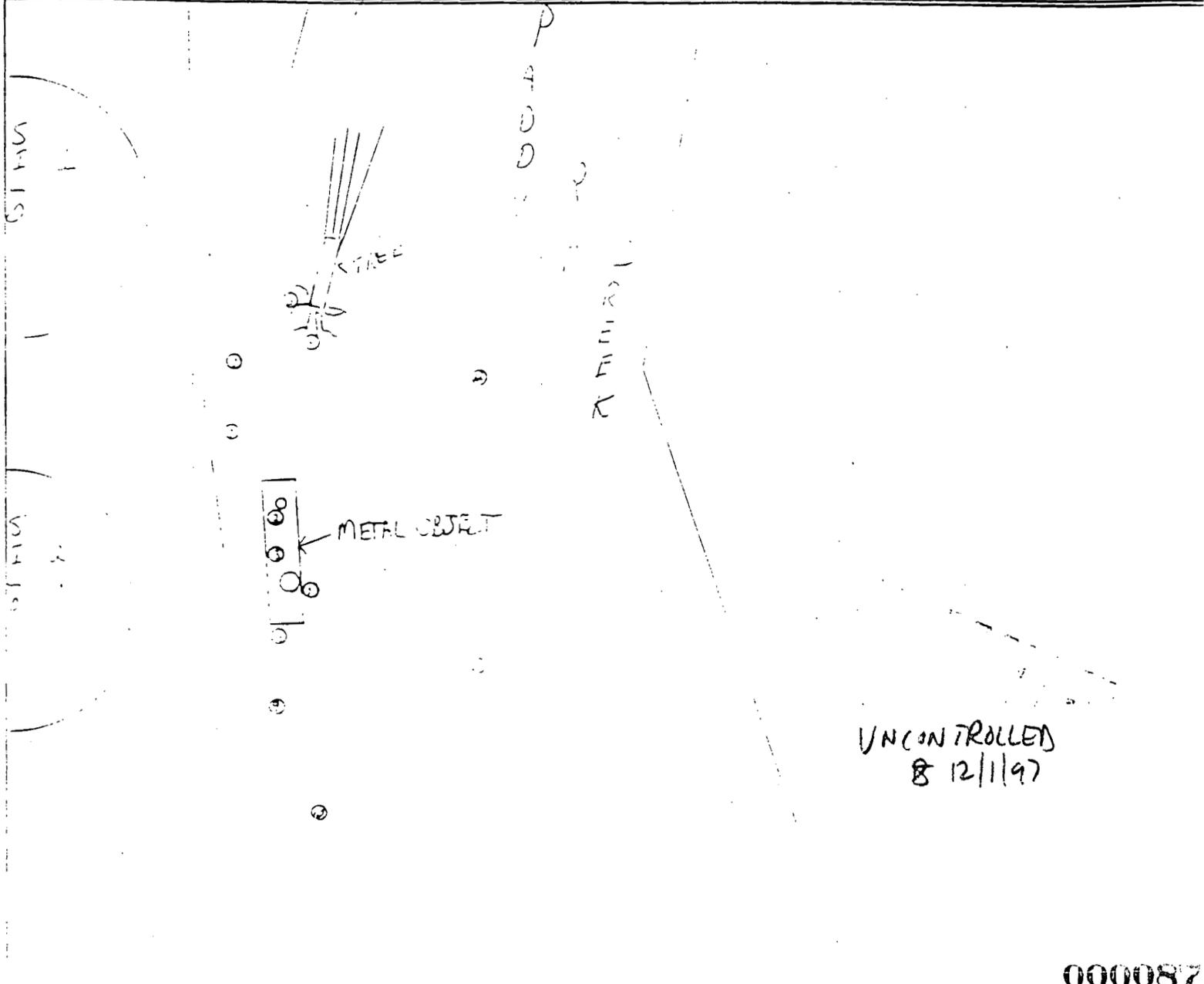
PAGE 3 OF 3

LOCATION: Bob's Run Creek

DATE: 09-09-97

DOCUMENT TITLE: Survey of Material in Creek

SERIAL NUMBER: 97-F-04-035



000087

ENTERED BY

REVIEWED BY

PRINT NAME:

PRINT NAME:

Mike Van Dillen

Paul [unclear]

SIGNATURE/DATE:

SIGNATURE/DATE:

Mike Van Dillen 09-09-97

Paul [unclear] 9-9-97

ADDENDUM B
POST-EXCAVATION FRISKER RESULTS



FEMP

COVER SHEET

DOCUMENT TYPE RSR
 RWP
 ASR

SURVEY FOR RWP? YES
 NO

NAME C.M. CORWIN

PAGE 1 OF 5

SIGNED C.M. Corwin

LOCATION PADDYS RUN CREEK

LOCATION CODE

BADGE #

DATE

TIME

BLDG/GRID#

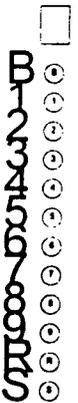
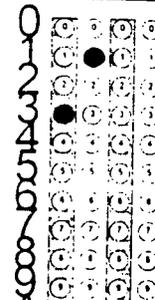
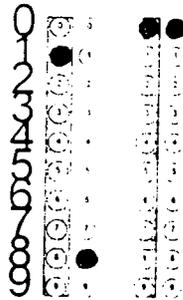
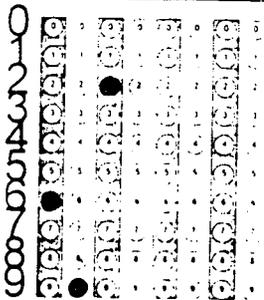
FLR

692

10/08/97

18:00

318

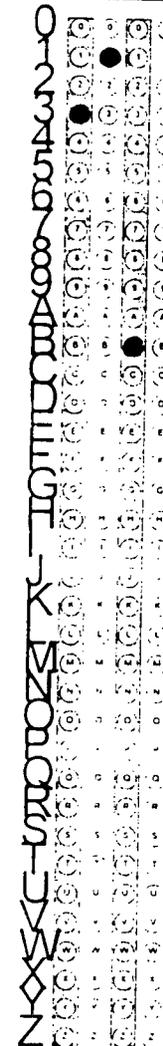
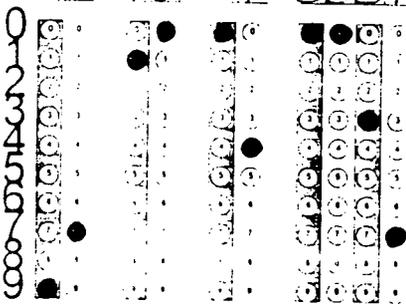


SURVEY NUMBER

RWP NUMBER

97-10-04-0037

97-0430



UNCONTROLLED

COMMENTS

Survey of acid during excavation and survey of soil to downspout (RA 226 area)

REVIEWER

BADGE

7719

DATE

10-13-97

SEMP
RADIOLOGICAL SURVEY

NUMBER: 97-10-04-0037

DATE: 10-08-97

RCT BADGE #/ 1692 / 70143

PAGE: 2 of 5

REVIEW [Redacted]

REVIEWER BADGE NO: 7719

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION - DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP. PERFORMANCE TEST SAT?	
								YES	NO
3	113537	BX	10-97	200	30	N/A	3000	✓	N/A
3	100438	BX	05-98	200	30	N/A	3000	✓	N/A
12	50760	✓	03-98	0	20	N/A	1200	✓	N/A
3	44209	✓	03-98	0	20	N/A	1200	✓	N/A

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (FT.)	DPM/100cm ² ALPHA		DPM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)						
			REMOVABLE (1)	FIXED PLUS REMOVABLE	REMOVABLE (1)	FIXED PLUS REMOVABLE	γ	β	γ	β			
							CONTACT	CONTACT	AT - FT.	AT - FT.			
1	Soil North	Pre	N/A	N/A	N/A	3K							
2		Post		<MDCR		<MDCR							
3		Pre		N/A		<MDCR							
4		Post		<MDCR		<MDCR							
5		Pre		N/A		3K							
6		Post		<MDCR		<MDCR							
7		Pre		N/A		3-6K							
8		Post		<MDCR		<MDCR							
9		Pre		N/A		3-12K							
10		Post		<MDCR		<MDCR							
11		Pre		N/A		3-21K							
12	✓	Post		<MDCR		<MDCR							
13	Soil Mid	Pre		N/A		3-6K							
14		Post		<MDCR		<MDCR							
15		Pre		N/A		3-12K							
16		Post		<MDCR		<MDCR							
17		Pre		N/A		3-12K							
18		Post		<MDCR		<MDCR							
19		Pre		N/A		3-6K							
20		Post		<MDCR		<MDCR							
21		Pre	✓	N/A	✓	3K							
22		Post	✓	<MDCR	✓	<MDCR							
23	✓	Pre	N/A	N/A	N/A	3-9K							

UNCONTROLLED

Note (1): Values identified by an asterisk (*) indicate results are less than the calculated MDA (RC-RDA-010).

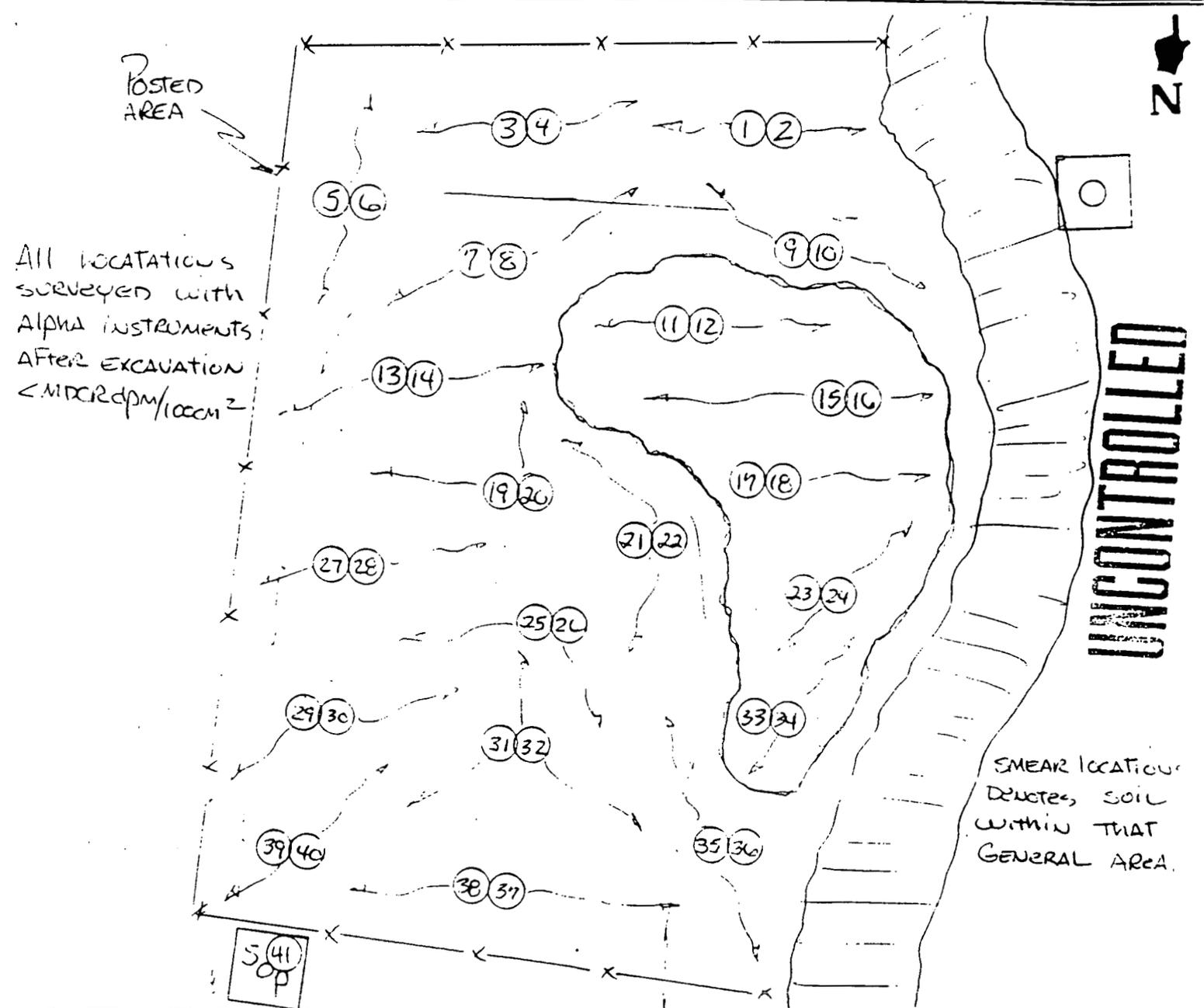
SUMMARY AND/OR SPECIAL REPORT FORM

LOCATION: PODYS RUN CREEK

DATE: 10-08-97

DOCUMENT TITLE: SURVEY, EXCAVATE, AND
CAMPPOST CREEK BED.

SERIAL NUMBER: 97-10-04-0037



ENTERED BY:

REVIEWED BY:

(PRINT NAME)

Ray Roseberry

(SIGNATURE/DATE)

Ray Roseberry

10-13-97

000092

SUMMARY AND/OR SPECIAL REPORT FORM

Location: PADDUS RUN CREEK

Date: 10-08-97

Document Title: SURVEY SOIL / DOWNPOSTING

SURVEY Serial Number: 97-10-04-0037

SOIL WAS NOT SURVEYED WITH AN ALPHA METER DURING EXCAVATION DUE TO THE SOIL BEING WET FROM DUST CONTROL METHODS. SOIL SURVEYED TO THE BEST OF OUR ABILITY WITH AVAILABLE INSTRUMENTATION. THE BACKGROUND IN THE AREA FLUCTUATED GREATLY. WE SUGGEST THAT FURTHER SURVEYING OF THE AREA, WITH MORE SENSITIVE INSTRUMENTATION, BE PERFORMED

UNCONTROLLED

M
H

Entered by:

(Print Name)

P.M. CURTIS

(Signature/Date)

J.D. Kozlowski

Reviewed by:

(Print Name)

Ray Roseberry

(Signature/Date)

Ray Roseberry

P.M. Curtis 10-8-97

Ray Roseberry 10-13-97