Superfund Records Center
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OTHER: SDMS 454661

EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE RECORD OF DECISION

OPERABLE UNITS 2 AND 9
RUBBLE DISPOSAL AREA

NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

August 2010

SDMS DocID 454661

STATEMENT OF PURPOSE AND AUTHORIZING SIGNATURES

This decision document explains the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Rubble Disposal Area (RDA) at the former Naval Air Station (NAS) South Weymouth, Massachusetts.

For the reasons documented herein, by my signature below, I approve the issuance of this ESD for Operable Units 2 and 9, the RDA, at the NAS South Weymouth Superfund Site and the changes stated therein. Concur and recommended for immediate implementation:

U.S. Department of the Navy

By: _____ Date: 8/30/10

David A. Barney
BRAC Environmental Coordinator
Naval Air Station South Weymouth
U.S. Navy

Concur and recommended for immediate implementation:

By: _____ Date: 9/8/10

James T. Owens III
Director, Office of Site Remediation and Restoration
U.S. Environmental Protection Agency, Region I

EXPLANATION OF SIGNIFICANT DIFFERENCES
OPERABLE UNITS 2 AND 9 – RUBBLE DISPOSAL AREA
NAVAL AIR STATION SOUTH WEYMOUTH, MASSACHUSETTS

1.0 INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

1.1 Site Name and Location

Naval Air Station South Weymouth
1134 Main Street
Weymouth, Massachusetts 02190
MA2170022022
Operable Units 2 and 9 – Rubble Disposal Area

1.2 Identification of Lead and Support Agencies

The U.S. Navy is the lead agency for all environmental investigations and cleanup programs at NAS South Weymouth. The lead regulatory agency is the U.S. Environmental Protection Agency Region 1 (EPA). The Massachusetts Department of Environmental Protection (MassDEP) provides additional regulatory agency support.

1.3 Legal Authority

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if EPA determines that the remedial action at a site differs significantly from the Record of Decision (ROD) for that site, then an explanation of the significant differences between the remedial action being taken and the remedial action set forth in the ROD shall be published which includes the reasons such changes are being made. Section 300.435(c) of the National Contingency Plan (NCP) and EPA guidance (OSWER Directive 9355.3-02) indicate that an ESD rather than a ROD Amendment is appropriate where the changes do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedial action do not fundamentally alter the overall remedy for the ROD, this ESD is being properly issued.

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the RDA, and is also available for public review at the NAS South Weymouth Caretaker Site Office (Building 11, Shea Memorial Drive) and the local Information Repositories identified below. In addition, a notice that briefly summarizes this ESD will be published in the major local newspapers of general circulation.

1.4 Overview of the ESD

The December 2003 ROD for the RDA (the Site) specified excavation of PCB-impacted soil, construction of a 4-acre soil cap for the landfill, long-term monitoring (LTM), institutional controls (ICs), and 5-year reviews. These remedial measures addressed the identified potential risks to small mammals from exposure to PCBs in hydric soil; addressed the potential risks to humans from consuming groundwater without standard, municipal-level treatment; and met all pertinent state landfill closure regulations.

In September/October 2008, EPA requested that the Navy make the following changes to the ROD to ensure that the specified ICs are enforceable over the long-term:

- Specify the compliance boundary for the monitoring program;
- Discuss the Remedial Action Objective (RAO) development to ensure that the ROD is based upon accurate information; and

- Revise the list of Applicable or Relevant and Appropriate Requirements (ARARs).

The adjustments presented in this ESD to the ROD do not fundamentally alter the overall Remedial Action for the RDA with respect to scope, performance, or cost.

1.5 Availability of Documents

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the RDA. This ESD is also available for public review at the following locations:

Department of the Navy
Caretaker Site Office
C/O David Barney
1134 Main Street, Bldg. 11
South Weymouth, MA 02190

Tufts Library
46 Broad Street
Weymouth MA 02188
(781) 337-1402

Abington Public Library
600 Gliniewicz Way
Abington, MA 02351
(781) 982-2139

Hingham Public Library
66 Leavitt Street
Hingham, MA 02043
(781) 741-1405

Rockland Memorial Library
336 Union Street
Rockland, MA 02370
(781) 878-1236

2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

2.1 Site Description and History

NAS South Weymouth is located approximately 15 miles southeast of Boston, Massachusetts in Norfolk and Plymouth counties. Portions of NAS South Weymouth are located in the Towns of Weymouth, Abington, and Rockland (Figure 1). NAS South Weymouth was operationally closed on September 30, 1996 and administratively closed on September 30, 1997 under the Base Realignment and Closure Act of 1990.

The RDA is a closed landfill covering approximately 4 acres in the eastern portion of the NAS South Weymouth property, east of Runway 8-26 (Figure 2). Roads and trails are located to the north and west of the Site and forested uplands are located south of the Site. The RDA is bound to the east by palustrine wetlands that border Old Swamp River. The river flows to the north and passes through four 10-foot wide corrugated metal conduits located beneath an access road at the north end of the landfill. A small intermittent stream, described as a feeder stream, discharges into Old Swamp River just north of the metal conduits. A second feeder stream borders the RDA to the south and east, entering the palustrine wetland, and flowing north prior to discharging into Old Swamp River.

The Navy disposed of natural debris (e.g., boulders and tree stumps) and building debris (e.g., concrete and other construction materials) in the area during development and operation of NAS South Weymouth. The RDA was used for approximately 4 years between 1959 and 1962 and again for a short period in 1978. Between 1959 and 1962, the RDA was used for disposal of large natural debris (described above) and tree stumps that were unsuitable as base-material for construction of earthen bridge abutments and roadways. In 1978, partially burned building debris and associated rubble from Building 21, which was destroyed by fire, were placed in the RDA. In addition to these two uses of the Site, there have been unofficial reports that transformers, transformer components, or transformer fluids were disposed of at the RDA. Materials observed at the Site during environmental investigations included glass, insulation material, concrete, scrap metal, wire, asphalt, rubber, fabric, boulders, and wood. There are no records

of hazardous wastes, regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA), being disposed of at the RDA.

Following completion of the ROD in 2003, the Navy constructed an engineered, vegetated soil cap over the RDA. The site features are shown on Figure 3. A locked, metal swing gate is located at the landfill entrance to the west. Surrounding the landfill is a wooden railing approximately 3.5 feet high; storm water controls consisting of drainage swales and rip-rap slope protection are also located along the perimeter of the landfill. A passive landfill gas management system is present and consists of eight gas vent (GV) pipes and seven gas probes (GP). The vent pipes were installed through the landfill cap; the gas probes were installed outside the limits of the cap adjacent to the western and northwestern landfill boundary. Ten groundwater monitoring wells (MW), nine piezometers (PZ), and eight staff/stream gauges (G) are located on and in the vicinity of the Site. Regional groundwater flow in the area of the RDA is generally to the east, toward Old Swamp River.

2.2 Enforcement History

In May 1994, NAS South Weymouth was listed on EPA's National Priorities List (NPL). Environmental studies and activities at NAS South Weymouth have been conducted by the Navy in accordance with CERCLA and the NCP.

Based on the designation of the NAS South Weymouth property as an NPL site, a Federal Facility Agreement (FFA) was executed by the Navy and EPA. The FFA became effective in April 2000 and established the Navy as the lead agency for the investigation and cleanup of NAS South Weymouth property, with EPA providing oversight. The MassDEP is not a party to the FFA but, in accordance with CERCLA and the NCP, MassDEP has participated in ongoing discussions and strategy sessions, as well as provided oversight and guidance through their review of the Navy's Installation Restoration Program documents.

In accordance with the FFA, a Site Management Plan (SMP) with task schedules and deliverables is updated annually each summer and is published each fall. The SMP serves as a management tool for planning, reviewing, and setting priorities for environmental investigative and remedial response activities to be conducted at NAS South Weymouth. The SMP is available for public review at the NAS South Weymouth information repositories listed in Section 1.5 of this ESD.

2.3 Site Contamination

With respect to soil, the results of the ecological risk assessment indicated potential adverse effects to small mammals based on exposure (ingestion) of PCBs. Following completion of the ROD, the Navy excavated and properly disposed offsite approximately 54 cubic yards of PCB-impacted hydric soil to mitigate that risk. Post excavation sampling indicated that cleanup goals were achieved, leaving no samples with PCB concentrations greater than 8 mg/kg (ecological risk-based cleanup goal); the arithmetic mean of post excavation samples was below 1 mg/kg (literature-based risk screening value).

In groundwater, unacceptable risks were associated with hypothetical future residents consuming site groundwater containing arsenic, benzo(a)pyrene, and manganese. Cleanup goals for these chemicals were established as the federal Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) under the Safe Drinking Water Act or, if lower, the state MCLs under the Massachusetts Office of Research and Standards. In the absence of such standards, a risk-based standard was calculated.

2.4 Remedy Selected in the 2003 ROD

The December 2003 ROD for the RDA specified the following components:

- Removal and offsite disposal of approximately 54 cubic yards of PCB-impacted hydric soil from the adjacent wetland area to protect ecological receptors;

- Construction of a 4-acre soil cap over the onsite disposed material to meet state regulations for landfill closure;

- Site maintenance and long-term monitoring (LTM) as required under state landfill closure regulations;

- ICs to restrict intrusive activities on the landfill cap and prevent human exposure to groundwater beneath the landfill containing contaminant concentrations greater than federal and state drinking water standards); and

- 5-year reviews by the Navy to ensure that the selected remedy continues to be protective of human health and the environment.

During construction of the soil cap in 2004-2005, additional PCB-impacted soil was identified in an upland area near the northeast end of the landfill. The Navy excavated the additional soil and properly disposed of it at an offsite, licensed facility. Petroleum-impacted materials were detected in the wetland in the vicinity of the east-central portion of the landfill. Remedial actions were taken to protect potential ecological receptors from exposure to these materials. Additional details can be found in the Final Remedial Action Completion Report for the RDA.

3.0 BASIS FOR THE DOCUMENT

By this ESD, the Navy is addressing the following concerns raised by EPA in correspondence to Navy dated September 3, 2008 and July 12, 2010, and in subsequent discussions with Navy:

- As written, the ROD could be interpreted to require that drinking water standards be met within the landfill footprint; however, this was not the intent of the ROD. The RAO to prevent human exposure to chemicals of concern in groundwater will be satisfied by a clarification of the ICs established to restrict groundwater use.

- EPA's concern regarding RAO development and the Feasibility Study will be addressed by the changes described in Section 4.2 of this document.

- The Applicable or Relevant and Appropriate Requirements (ARARs) identified in the ROD should include citations to the Safe Drinking Water Act and federal or state drinking water standards, whichever are more stringent, in order to satisfy the stated Remedial Action Objective (RAO) to "prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards, or posing an unacceptable risk to human health." The ARARs listed in the ROD should also include relevant risk guidance and health advisory for manganese, which is an identified contaminant of concern in groundwater. The listed ARARs need to clarify that MCLs do not need to be met under the landfill or within the compliance boundary consistent with 310 Code of Massachusetts Regulations (CMR) 19.000.

- EPA does not agree with the current manganese background value used by Navy and has suggested that Navy calculate a site-specific background value for manganese in groundwater upgradient of the RDA.

- Since manganese has been found in groundwater outside of the ROD-specified compliance boundary at concentrations greater than the cleanup goal and the EPA health advisory, EPA has determined that a groundwater remedy is necessary. EPA has indicated that monitored natural attenuation (MNA) is an appropriate remedy since ICs are in place, LTM has been implemented, and viable active remedial alternatives are not currently recommended.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES OR NEW ALTERNATIVES

4.1 Background

The ROD was signed in December 2003 and the Navy completed the Remedial Action in 2005. Navy is conducting post-closure long-term monitoring, and operations and maintenance (O&M) activities as described in the Long-Term Monitoring Plan. Landfill cap inspections were performed quarterly for the first 2 years of the post-closure care period; semi-annually inspections are now performed. An LTM network has been established in and adjacent to the landfill. This network currently includes ten groundwater monitoring wells, nine piezometers, eight staff gauges (six in the wetland and two in Old Swamp River), as well as gas probes, gas vents, and established surface water and sediment monitoring locations. The monitoring program includes the sampling of groundwater, surface water, landfill gas, and sediment. In groundwater, COC concentrations have been consistently below the cleanup goals for benzo(a)pyrene (since June 2007) and arsenic (since March 2008). Manganese concentrations have been above the cleanup goal in nine of the ten monitoring wells in each of the LTM events to date.

In July 2009, the Navy issued the first Five-Year Review Report for NAS South Weymouth to evaluate the various site remedies for protecting human health and the environment. As part of the review of the RDA, the report recommended that the point of compliance be expanded to include the downgradient monitoring well network to ensure that the site remedy remains protective in the future. The report also recommended that site monitoring be continued because manganese concentrations in excess of federal and state MCLs were detected in groundwater and chemical concentrations in excess of the National Recommended Water Quality Criteria (NRWQC) were detected in nearby surface water.

Subsequent discussions between Navy and EPA have resulted in an agreement to include the following in this ESD: revise the ARARs; restrict groundwater use in the area under the landfill and in the estimated plume area outside the landfill; include MNA as a groundwater remedy; and calculate a site-specific background value for manganese. The recommended expansion of the groundwater restriction will be addressed by an interim IC.

4.2 Description of Changes

Attachment 1 to this ESD presents the additional ARARs and To-Be-Considered (TBC) guidance requirements that are to be appended to Appendix F of the ROD. As a result, the RAO specified in the ROD to "prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards, or posing an unacceptable risk to human health" is satisfied through the addition of the federal and state drinking water standards and federal health advisories as action-specific standards which will guide the evaluation of the LTM program at the RDA. By comparing site groundwater data to these drinking water standards and guidance values, the Navy and regulatory agencies will be able to evaluate the future level of protectiveness of the selected remedy with respect to the identified risk scenario of groundwater ingestion by hypothetical future onsite residents. The drinking water standards and guidance values are cited as action-specific ARARs/TBCs intended for evaluating remedy protectiveness rather than as chemical-specific ARARs which would instead be used to remediate groundwater. At the RDA, the Navy and EPA agree that active groundwater remediation is not warranted but that MNA will be added as a groundwater remedy. The cited benchmarks will to be used as a guide for the LTM program and 5-year reviews to assess the protectiveness of the groundwater remedy.

For the RDA groundwater, MNA together with the ICs discussed below will provide continued protectiveness of human health and the environment. It is expected that naturally occurring processes, such as biodegradation, dispersion, and dilution would reduce concentrations of manganese in groundwater over time. Aquifer conditions will be monitored by the existing LTM program, which includes parameters necessary to monitor natural attenuation processes. ICs restricting use of groundwater beyond the footprint of the landfill will be established to ensure that exposure to contaminated groundwater cannot occur. This IC will be in place until the groundwater cleanup goals are met outside of the landfill.

The 2003 ROD indicates that the 4-acre landfill footprint also serves as the compliance boundary for the ICs pertaining to site use and groundwater use. This permanent IC compliance boundary is shown on Figure 4 and will remain in place in perpetuity. The restrictions for this IC are described in Section 2.4 of this ESD and will be implemented consistent with the 2003 ROD.

RDA LTM data indicate that manganese concentrations in groundwater exceed the ARARs/TBCs beyond the edge of the landfill footprint. As evidenced by elevated manganese concentrations detected in monitoring wells located upgradient of the RDA, some of the manganese contamination is naturally occurring. The higher manganese concentrations in downgradient wells may be an indication of the reducing conditions generated under the landfill cap and/or due to the wetlands abutting the downgradient side of the landfill. In the absence of the wetland, additional monitoring wells could be installed further downgradient to serve as sentinel wells to demarcate the point where the landfill's influence on manganese concentrations in groundwater ends. However, the landfill's influence on groundwater is limited by the discharge of groundwater to the abutting wetlands associated with Old Swamp River and its feeder stream. The RDA LTM data indicate that where vertical gradients could be calculated, either upward (groundwater discharging to surface water) or neutral gradients have been consistently observed. Upward gradients at most piezometer/staff gauge locations in the wetland along the perimeter of the landfill are most frequent in the spring and winter; during the summer most of these staff gauges are dry. The piezometer/staff gauge locations in Old Swamp River consistently indicate that groundwater discharges to the river. Therefore the landfill's influence on groundwater is generally limited to the immediate downgradient area where groundwater discharges to surface water. LTM surface water data downgradient of the landfill indicate concentrations of manganese well below the NAS South Weymouth background concentration in surface water (95% UPL of 1408.29 µg/L). There is no NRWQC established for manganese.

A second IC will be established to prevent human exposure to COCs in groundwater beyond the landfill footprint. This IC boundary is shown on Figure 4 and includes the area outside of the capped landfill boundary where the groundwater does not meet the cleanup goals or the health advisory. This second IC will be an 'interim' control that can be removed once the groundwater cleanup goals are met. The groundwater use restriction for this area will be included as a land use control along with the conditions under which the IC can be removed.

Navy agrees to calculate a site-specific background manganese concentration that all parties accept as representative of background conditions in the vicinity of the RDA. The current cleanup goal will be adjusted to this calculated manganese background value once it is mutually agreed upon. The existing monitoring well network and piezometers downgradient of the RDA that are included in the LTM program will be used to assess groundwater quality and the effectiveness of the MNA remedy. The LTM program will continue to monitor manganese concentrations within the landfill and in the downgradient wells, piezometers, and surface water (Old Swamp River). The interim IC along with a revised background concentration for manganese will be used to ensure that no groundwater extraction wells are installed in this zone without approval by the Navy and EPA.

4.3 Changes in Expected Outcomes

As described in Section 4.2, the administrative changes to the ARARs and ICs as well as inclusion of an MNA groundwater remedy for the RDA will not adversely impact the performance or cost of the selected remedy. Instead, these changes, which clarify the original intent of the ROD, will allow the Navy and EPA to better implement and enforce the ICs necessary to protect human health and the environment in the long-term. There are no substantive changes to the current O&M or LTM plan for the RDA. The IC boundaries shown in Figure 4 will be incorporated into the Land Use Controls Implementation Plan for the RDA.

5.0 SUPPORT AGENCY COMMENTS

EPA has reviewed and provided comments to this ESD. In signing the ESD, EPA concurs with the findings of this document. MassDEP also reviewed this ESD and provided comments to Navy. Navy has addressed the comments received from both EPA and MassDEP. MassDEP accepted Navy responses without further comment.

6.0 STATUTORY DETERMINATIONS

Considering the above-described adjustments to the selected remedy set forth in the 2003 ROD, the Navy believes that the remedy remains protective of human health and the environment. The modifications to the ARARs/TBCs for the remedial action, addition of a MNA groundwater remedy, and the ICs will result in a remedy that will comply with the ARARs, provide short- and long-term effectiveness, be cost effective, implementable and be protective of human health and the environment. These changes satisfy CERCLA Section 121(b).

7.0 PUBLIC PARTICIPATION

Throughout the site's history, the Navy has kept the community and other interested parties apprised of the RDA activities through informational meetings, fact sheets, press releases, public meetings, and contact with local officials. Also, the Navy regularly meets to discuss the status and progress of the Installation Restoration Program with the Restoration Advisory Board (RAB), which includes representatives from the local community. Representatives from the Navy, EPA, and MassDEP attend these public meetings.

The changes in the approach to the Site remedy were presented to the public in the Restoration Advisory Board (RAB) August 2010 update and will be discussed at the RAB meeting to be held on September 9, 2010.

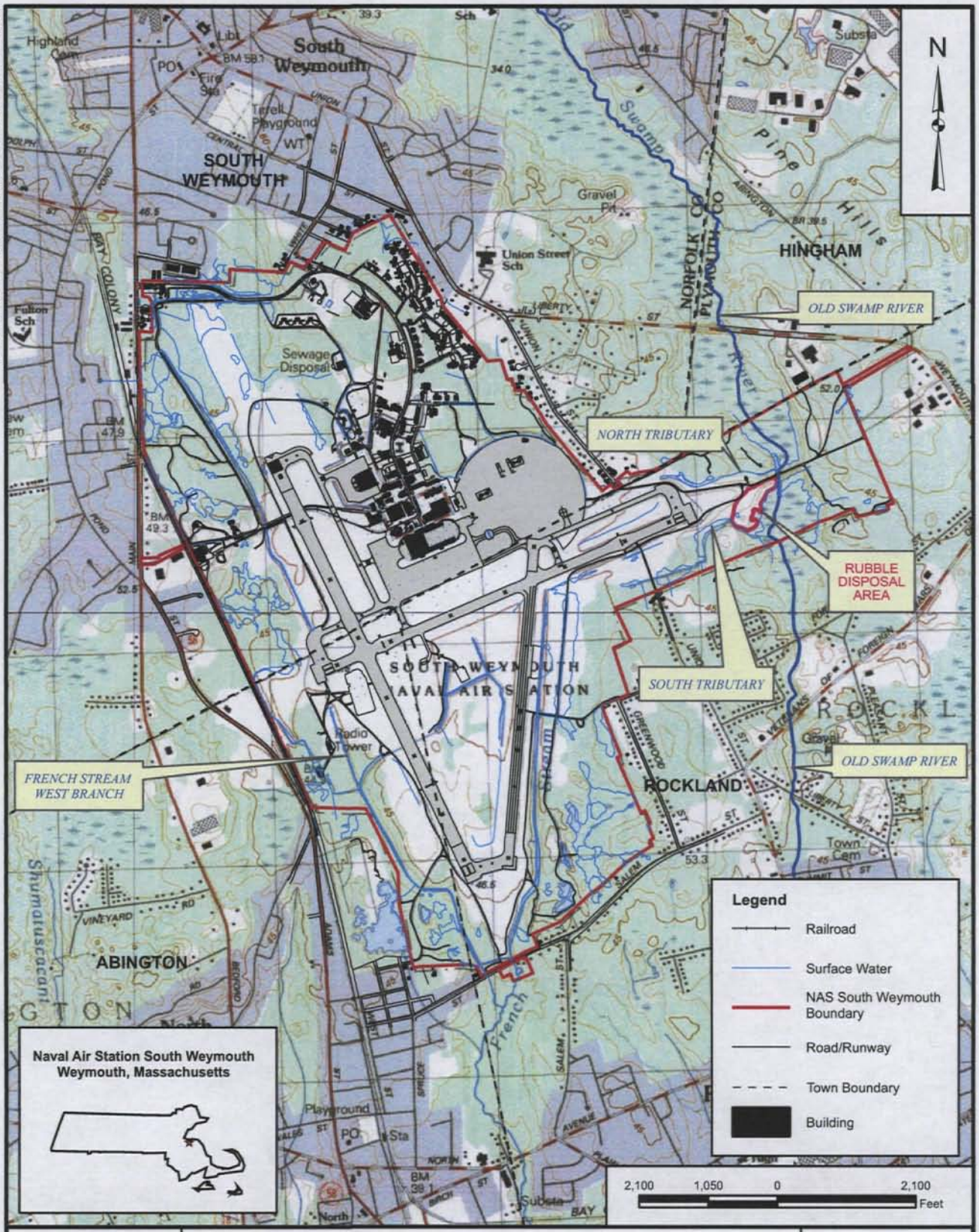
ATTACHMENT A – ADDITIONAL ARARs AND TBCs FOR THE RDA ROD

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Federal – Chemical Specific				
All	Risk Assessment Guidance – Cancer Slope Factors	Guidance used in human health risk assessments as guidance values to evaluate the potential carcinogenic hazard caused by exposure to chemicals of concern.	Cancer slope factors were used to estimate risks and were used in the development of cleanup goals to mitigate potential carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Reference Dose (RfD) Guidance	Guidance used to characterize human health risks associated with non-carcinogens in site media.	RfDs were used to estimate risks and were used in the development of cleanup goals to mitigate potential non-carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Guidelines for Carcinogen Risk Assessment, EPA/630/P-03/001F (March 2005)	Guidance for assessing cancer risk.	This guidance was used to estimate risks and in the development of cleanup goals to mitigate potential carcinogenic hazards associated with human exposure to COCs in groundwater.	To Be Considered
All	EPA Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens, EPA/630/R03/003F (March 2005)	Guidance for assessing cancer risks to children.	This guidance was used to estimate risks and in the development of cleanup goals to mitigate potential carcinogenic hazards associated with child exposure to COCs in groundwater.	To Be Considered

Federal – Action Specific				
Groundwater	Health Advisory for Manganese (EPA Office of Drinking Water)	Health Advisories are used to estimate risk associated with the consumption of contaminated drinking water; the advisories consider non-carcinogenic effects only. The Advisories are to be considered for contaminants in groundwater that may be used for drinking water where the standard in the Health Advisory is more conservative than either federal or statutory standards. The Health Advisory for manganese is 300 ug/L.	Groundwater monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Manganese data will be compared to the respective Health Advisory. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	To Be Considered
Groundwater	Safe Drinking Water Act 42 USC §300f *et seq.*; National primary drinking water regulations (40 CFR part 141, Subparts B and G)	Establishes maximum contaminant levels (MCLs) for common organic and inorganic contaminants applicable to public drinking water supplies. Used as relevant and appropriate cleanup standards for aquifers and surface water bodies that are potential drinking water sources.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to MCLs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate
Groundwater	Safe Drinking Water Act (42 USC §300f *et seq.*); National primary drinking water regulations (40 CFR 141, Subpart F)	Establishes maximum contaminant level goals (MCLGs) for public water supplies. MCLGs are health goals for drinking water sources. These unenforceable health goals are available for a number of organic and inorganic compounds.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to non-zero MCLGs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate
State – Action Specific				
Groundwater	MA Drinking Water Standards, 310 CMR 22.00	These regulations establish Massachusetts MCLs (MMCLs) for public water supply systems. If MMCLs are more stringent than federal levels, then the state levels are used as the ARAR.	Monitoring will be performed to evaluate that the selected remedy continues to be protective of human health. Groundwater monitoring data will be compared to MMCLs. Land Use Controls will be implemented to prevent the use of site groundwater as a drinking water supply.	Relevant and Appropriate

FIGURES

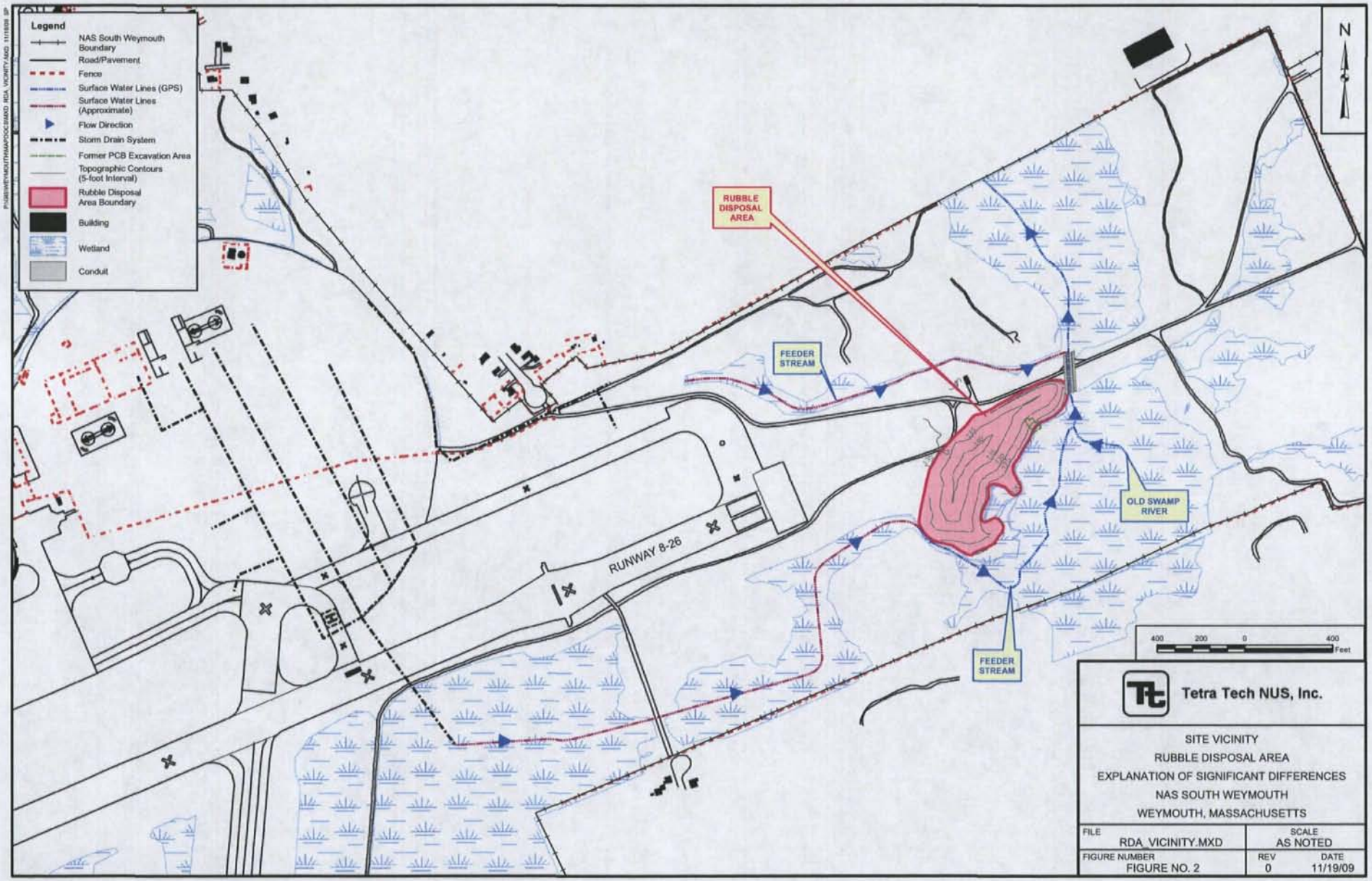
P:\GIS\WEYMOUTH\MAPDOCS\MXD\BASE_LOCATION_MAP.MXD 11/19/09 SP

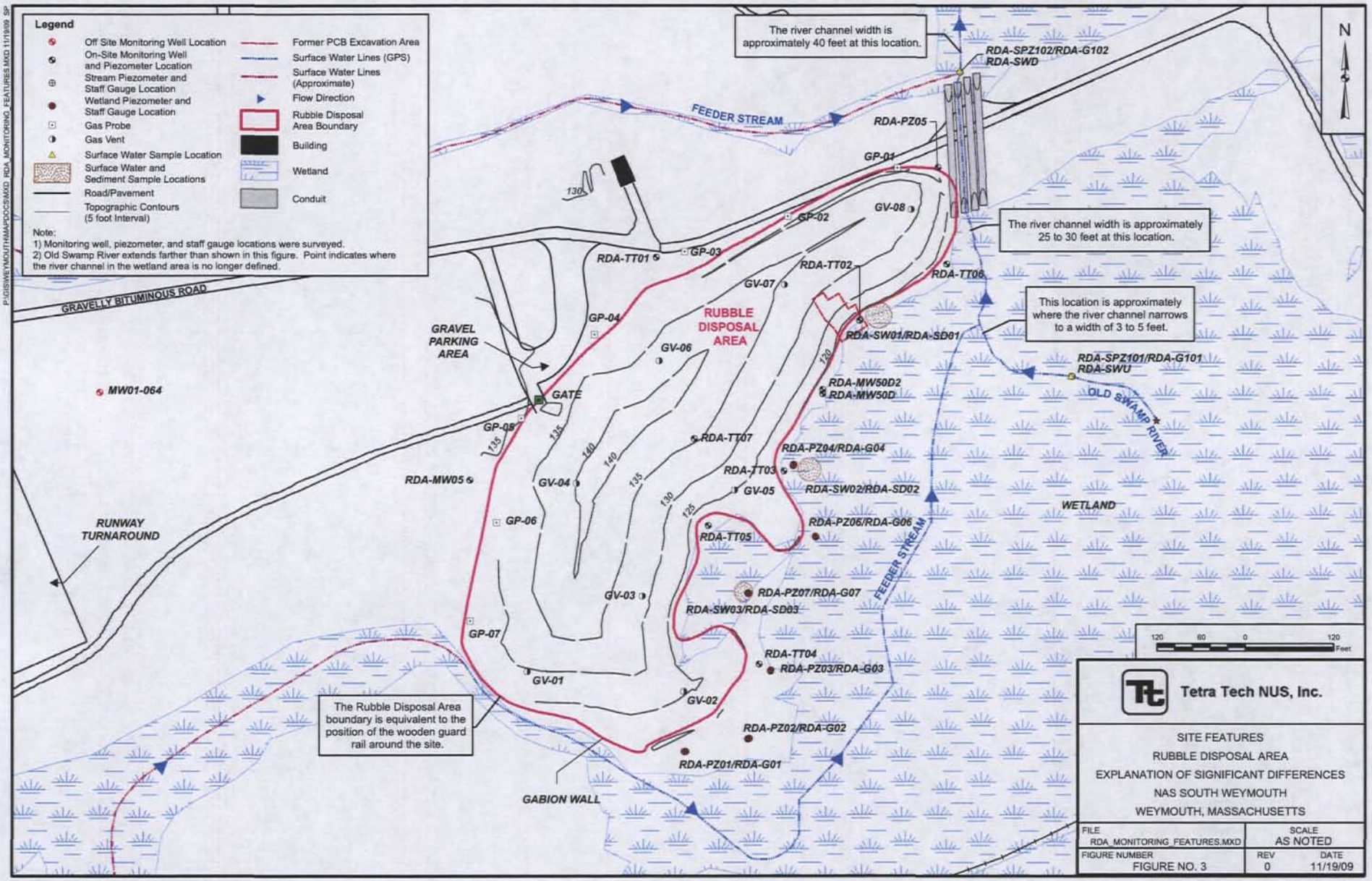


Tetra Tech NUS, Inc.

SITE LOCUS
RUBBLE DISPOSAL AREA
EXPLANATION OF SIGNIFICANT DIFFERENCES
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SCALE	
AS NOTED	
FILE	
BASE_LOCATION_MAP.MXD	
REV	DATE
0	11/19/09
FIGURE NUMBER	
FIGURE NO. 1	


Legend
NAS South Weymouth Boundary
Road/Pavement
Fence
Surface Water Lines (GPS)
Surface Water Lines (Approximate)
Flow Direction
Storm Drain System
Former PCB Excavation Area
Topographic Contours (5-foot Interval)
Rubble Disposal Area Boundary
Building
Wetland
Conduit
RUBBLE DISPOSAL AREA
FEEDER STREAM
OLD SWAMP RIVER
FEEDER STREAM
RUNWAY 8-26
N
400 200 0 400 Feet
Tetra Tech NUS, Inc.
SITE VICINITY
RUBBLE DISPOSAL AREA
EXPLANATION OF SIGNIFICANT DIFFERENCES
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS
FILE
RDA_VICINITY.MXD
SCALE
AS NOTED
FIGURE NUMBER
FIGURE NO. 2
REV
0
DATE
11/19/09


Legend
Off Site Monitoring Well Location
On-Site Monitoring Well and Piezometer Location
Stream Piezometer and Staff Gauge Location
Wetland Piezometer and Staff Gauge Location
Gas Probe
Gas Vent
Surface Water Sample Location
Surface Water and Sediment Sample Locations
Road/Pavement
Topographic Contours (5 foot Interval)
Former PCB Excavation Area
Surface Water Lines (GPS)
Surface Water Lines (Approximate)
Flow Direction
Rubble Disposal Area Boundary
Building
Wetland
Conduit
Note:
1) Monitoring well, piezometer, and staff gauge locations were surveyed.
2) Old Swamp River extends farther than shown in this figure. Point indicates where the river channel in the wetland area is no longer defined.
The river channel width is approximately 40 feet at this location.
The river channel width is approximately 25 to 30 feet at this location.
This location is approximately where the river channel narrows to a width of 3 to 5 feet.
The Rubble Disposal Area boundary is equivalent to the position of the wooden guard rail around the site.
FEEDER STREAM
OLD SWAMP RIVER
WETLAND
RUBBLE DISPOSAL AREA
GRAVELLY BITUMINOUS ROAD
GRAVEL PARKING AREA
GATE
RUNWAY TURNAROUND
GABION WALL
RDA-SPZ102/RDA-G102
RDA-SWD
RDA-PZ05
GP-01
GP-02
GP-03
GP-04
GP-05
GP-06
GP-07
GV-01
GV-02
GV-03
GV-04
GV-05
GV-06
GV-07
GV-08
RDA-TT01
RDA-TT02
RDA-TT03
RDA-TT04
RDA-TT05
RDA-TT06
RDA-TT07
RDA-SW01/RDA-SD01
RDA-SPZ101/RDA-G101
RDA-SWU
RDA-MW50D2
RDA-MW50D
RDA-PZ04/RDA-G04
RDA-SW02/RDA-SD02
RDA-PZ06/RDA-G06
RDA-PZ07/RDA-G07
RDA-SW03/RDA-SD03
RDA-PZ03/RDA-G03
RDA-PZ02/RDA-G02
RDA-PZ01/RDA-G01
RDA-MW05
MW01-064
N
120 60 0 120 Feet
Tetra Tech NUS, Inc.
SITE FEATURES
RUBBLE DISPOSAL AREA
EXPLANATION OF SIGNIFICANT DIFFERENCES
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS
FILE RDA_MONITORING_FEATURES.MXD
SCALE AS NOTED
FIGURE NUMBER FIGURE NO. 3
REV 0
DATE 11/19/09
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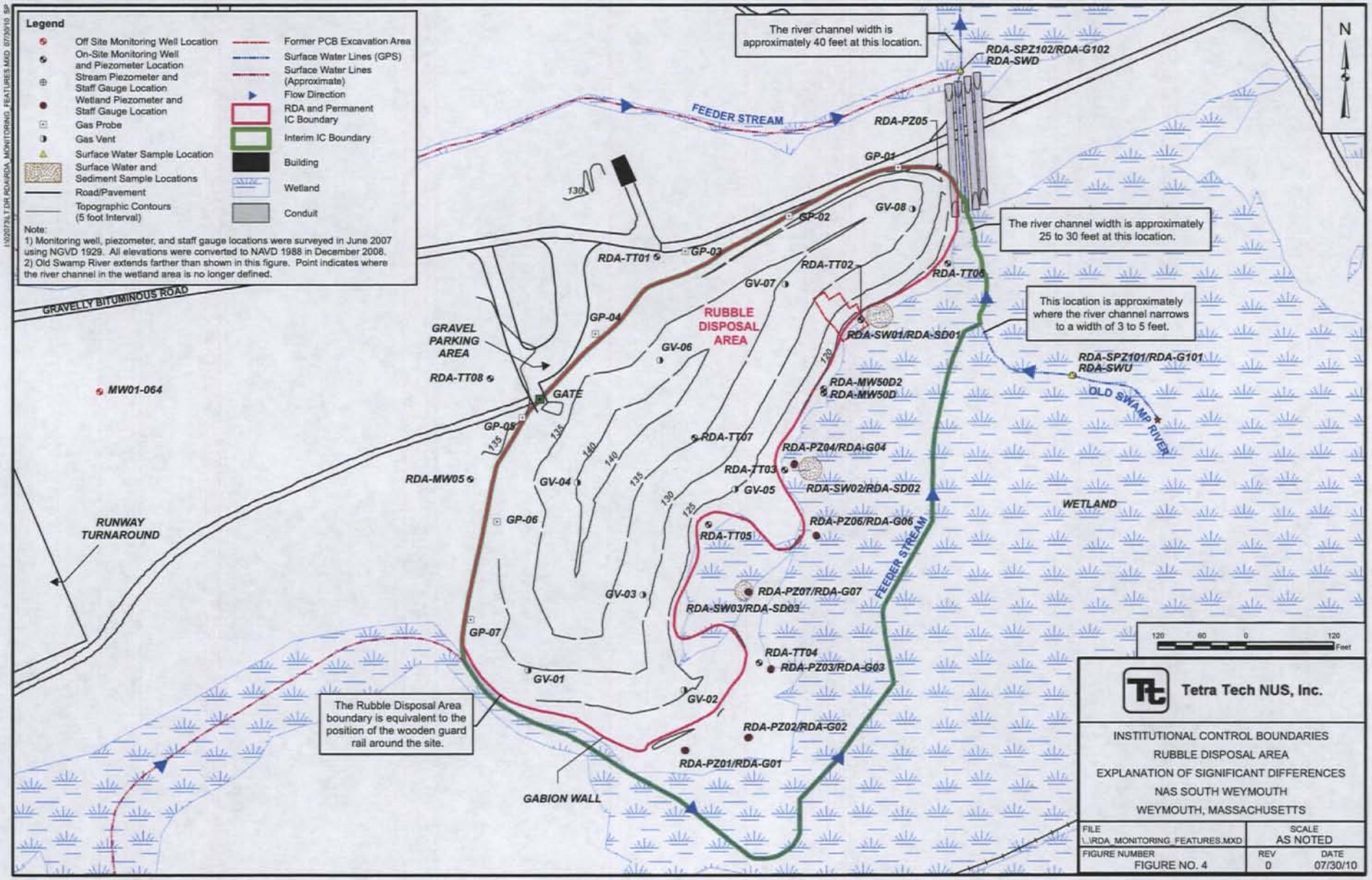
Legend
Off Site Monitoring Well Location
On-Site Monitoring Well and Piezometer Location
Stream Piezometer and Staff Gauge Location
Wetland Piezometer and Staff Gauge Location
Gas Probe
Gas Vent
Surface Water Sample Location
Surface Water and Sediment Sample Locations
Road/Pavement
Topographic Contours (5 foot Interval)
Former PCB Excavation Area
Surface Water Lines (GPS)
Surface Water Lines (Approximate)
Flow Direction
RDA and Permanent IC Boundary
Interim IC Boundary
Building
Wetland
Conduit
Note:
1) Monitoring well, piezometer, and staff gauge locations were surveyed in June 2007 using NGVD 1929. All elevations were converted to NAVD 1988 in December 2008.
2) Old Swamp River extends farther than shown in this figure. Point indicates where the river channel in the wetland area is no longer defined.
The river channel width is approximately 40 feet at this location.
The river channel width is approximately 25 to 30 feet at this location.
This location is approximately where the river channel narrows to a width of 3 to 5 feet.
The Rubble Disposal Area boundary is equivalent to the position of the wooden guard rail around the site.
N
FEEDER STREAM
RDA-SPZ102/RDA-G102
RDA-SWD
RDA-PZ05
GP-01
GV-08
GP-02
GP-03
RDA-TT01
RDA-TT02
RDA-TT06
GV-07
RUBBLE DISPOSAL AREA
RDA-SW01/RDA-SD01
GRAVELLY BITUMINOUS ROAD
GRAVEL PARKING AREA
GP-04
GV-06
RDA-TT08
GATE
MW01-064
RDA-SPZ101/RDA-G101
RDA-SWU
OLD SWAMP RIVER
RDA-MW50D2
RDA-MW50D
GP-05
RDA-TT07
RDA-PZ04/RDA-G04
RDA-TT03
GV-05
RDA-SW02/RDA-SD02
RDA-MW05
GV-04
WETLAND
GP-06
RDA-PZ06/RDA-G06
RUNWAY TURNAROUND
RDA-TT05
GV-03
RDA-PZ07/RDA-G07
RDA-SW03/RDA-SD03
GP-07
RDA-TT04
RDA-PZ03/RDA-G03
GV-01
GV-02
RDA-PZ02/RDA-G02
RDA-PZ01/RDA-G01
GABION WALL
120 60 0 120 Feet
Tetra Tech NUS, Inc.
INSTITUTIONAL CONTROL BOUNDARIES
RUBBLE DISPOSAL AREA
EXPLANATION OF SIGNIFICANT DIFFERENCES
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS
FILE \...\RDA_MONITORING_FEATURES.MXD
SCALE AS NOTED
FIGURE NUMBER FIGURE NO. 4
REV 0
DATE 07/30/10