

**MINUTES OF TRC AND PUBLIC MEETING
FEBRUARY 3, 1994**

TO: NSB-NLON TRC Members

FROM: Barry Giroux
Atlantic Environmental Services, Inc.

DATE: February 21, 1994

RE: Technical Review Committee and Public Meeting - February 3, 1994
Installation Restoration Study
Naval Submarine Base — New London
Groton, Connecticut
Contract No.: N62472-88-C1294

The following people attended the meeting:

Barry Giroux	Atlantic Environmental Services, Inc.
Paul Burgess	Atlantic Environmental Services, Inc.
Katherine Fogarty	Menzie-Cura & Associates
Mark Leipert	Northern Division Naval Facilities Engineering Command
Ronald Ochsner	Ledyard Resident
Matt Cochran	Halliburton NUS
David Miu	Northern Division Naval Facilities Engineering Command
Mark Leone	CTDEP
Paul Marchessault	U.S. EPA
Connie Dinerman	New London Health Department
Robert Jones	COMSUBGRU TWO
Diana McPherson	Northern Division Naval Facilities Engineering Command
Lt. J.P. Rios	Environmental Department
Andrew Stackpole	Subbase Environmental
Christine Williams	U.S. EPA
Robert Fromer	Resident
Stan Conti	Halliburton NUS
Deb Kilmartin	Halliburton NUS
Lisa Hayden	New London Day

Lt. Rios opened the meeting at 13:00 and welcomed all attendees.

Review of Minutes From November 4, 1993 TRC Meeting

Lt. Rios reviewed the minutes from the previous Technical Review Committee (TRC) meeting of November 4, 1993, highlighting second-round drinking water data, community relations plan, interim remedial actions, Building 31 removal action, Phase II RI, federal facilities agreement, and FY 94 budget status.

Building 31 Removal Action

Mark Leipert of the Northern Division Naval Facilities Engineering Command gave a presentation regarding the status of the Building 31 removal action. Overheads which summarize the contents of the presentation are included as Attachment 1 to these minutes.

Currently treatability studies are being conducted. Construction is scheduled to begin around February 14, 1994 and be completed by April 15, 1994. Groundwater at this site was sampled in December. These samples are being analyzed and validated.

Questions Raised During the Presentation

Comment: Robert Fromer asked if any long-term, post-closure groundwater monitoring is proposed.

Response: Mark Leipert responded affirmatively; however, it has not been decided how long post-closure monitoring will be conducted.

Comment: Robert Fromer asked if there was any statistical basis for the groundwater sampling plan. Mr. Fromer stated that this component has been a shortfall of previous sampling plans which have not contained a logical, statistical basis for any sample locations.

Response: Matt Cochran indicated that sample locations were based on professional judgement which biases sampling to areas of known or suspected contamination. Due to the high cost of sample analyses, it is usually not feasible to select enough sample locations to effectively use statistical approaches. Paul Marchessault added that the method used to develop work plans for the investigations at the Subase are the same methods used to develop work plans at all Superfund sites.

Status of Interim Field Investigations and Remedial Designs

Barry Giroux of Atlantic Environmental Services, Inc. (Atlantic) gave a presentation regarding the status of the field investigations and designs for the interim remedial actions. The overheads used during this presentation are included as Attachment 2 to these minutes. The presentation focused on the overall project schedules to complete the four interim remedial actions and the short time periods for preparation and review of all the documents required to implement the remedial actions.

In summary, the following project milestones were highlighted:

- all field investigations have been completed;
- focused feasibility studies (FFSs), which include the field investigation results are proposed to be submitted to the TRC (which includes CTDEP and EPA) by the following dates:
 - DRMO - February 28, 1994
 - Spent Acid - March 7, 1994

- Area A Landfill - March 14, 1994
- Area A Downstream/OBDA - March 28, 1994
- design work plans for all four sites have been submitted to the TRC;
- design final submissions are proposed to be submitted to the TRC by the following dates.
 - DRMO - completed January 31, 1994
 - Spent Acid - February 16, 1994
 - Area A Landfill - March 23, 1994
 - Area A Downstream/OBDA - April 27, 1994

Questions Raised During the Presentation

Comment: Paul Marchessault clarified the characterization of the proposed remedial actions as interim actions. EPA uses the term interim to apply to actions for which another Record of Decision (ROD) will be required in five years. The actions proposed by the Navy are final actions for the media or unit they address, although additional remediation/RODs may be required for other media or operable units at a site. He also reminded TRC members that the Focused Feasibility Studies (FFSs) they will be receiving evaluate different remedial alternatives; however, the FFSs do not select a final remedy for a site. This final remedy is selected in the proposed plan.

Comment: Mr. Fromer asked what happens when he recommends a remediation plan different from the one proposed by the Navy.

Response: Paul Marchessault responded that all comments will be fully evaluated. There will be a public hearing/meeting regarding the proposed plan and all comments will be responded to in a responsiveness summary which accompanies the ROD.

Questions Raised During the Presentation

Matt Cochran of Halliburton NUS gave a presentation regarding the status of the Phase II RI. His overheads, which contain the contents of his presentation, are included in Attachment 3 to these minutes. Matt Cochran indicated that funding has been allocated to complete the Phase II RI at all 13 sites. Field work has been ongoing at several sites and analytical results are just starting to be completed. The overheads detail work completed to date and upcoming activities. Drilling activities should be completed in March, and groundwater samples are scheduled to be collected in March and June. The following comments were made regarding observations made in the field at individual sites.

- Area A Wetland: field-screening did not detect any DDTR in wetland sediment samples.
- Area A Downstream: the soil gas survey in this area did not detect any target compounds.

- Area A Landfill: field-screening detected polychlorinated biphenyl (PCB) in soils at two boring locations (2LTB13 and 2LTB23).
- Spent Acid: field-screening did not detect elevated levels of lead.
- Lower base: field-screening detected elevated lead in soils and oil contamination was detected at several boring locations.
- CBU Drum Storage Area: Some evidence of contamination was observed in one well.
- Goss Cove: field-screening detected elevated levels of lead in soil.

Questions Raised During the Presentation

Comment: Robert Fromer asked if samples were collected at the sediment surface water interface adjacent to the Subase and if the food chain has been established to select target organisms for analysis.

Response: Matt Cochran responded that sediment samples will be collected at the interface. Diana McPherson indicated that the food chain has been defined for biota in the Thames River and it was used to select target organisms for analysis.

Comment: Robert Fromer asked what type of Quality Assurance/Quality Control (QA/QC) is being performed for laboratory analyses.

Response: Matt Cochran responded that all analytical data undergo a high level of QA/QC in accordance with EPA level IV and NEESA level D procedures, which are the highest levels specified by both the EPA and Navy. QA/QC procedures are specified for field sampling and laboratory analyses and include complete validation of all analytical data.

Comment: Robert Fromer asked if the 7Q10 was considered regarding sampling and data evaluation. (7Q10 is the seven-day, ten-year low flow in a stream.)

Response: Matt Cochran indicated that sampling is not being performed during low flow conditions. Katherine Fogarty indicated that the ecological risk assessment for the Thames River would evaluate low flow or dilution conditions; however, as the Thames River at the Subase is tidal, the 7Q10 may not be the appropriate factor for these evaluations.

Comment: Christine Williams asked when the Phase II RI report will be available for review.

Response: Matt Cochran indicated that the first draft is due to the Navy in September 1994.

Status of Ecological Sampling

Katherine Fogarty of Menzie-Cura & Associates, Inc. gave a presentation regarding the status of ecological sampling. Her overheads, which contain the contents of her presentation, are included as Attachment 4 to these minutes. Katherine explained that all field work to support the ecological risk assessment for Area A Downstream has been completed; however, results are not yet available. Work included collection of biota for body burden analysis, benthic surveys, sediment bioassay, soil invertebrate surveys, and *in situ* soil bioassays using earthworms. Katherine also indicated that all of the field work to support the Thames River ecological risk assessment has been completed except for the collection of blue crabs. They were unsuccessful in collecting enough blue crabs for chemical analyses. This effort will be done in the spring when blue crabs are more abundant in this area. Field work completed included sediment sampling, water sampling, a caged mussel study, and collection of bivalve shellfish.

Status of the Federal Facilities Agreement (FFA)

Paul Marchessault of the U.S. EPA presented the status of the FFA. Paul indicated that schedules in the FFA are presently under review. It is anticipated that in the next couple of weeks, the final FFA will be sent for signatures. Then the FFA will be released for public comment.

Public Comment Period

There were no public comments.

Lt. Rios adjourned the meeting at 14:45.

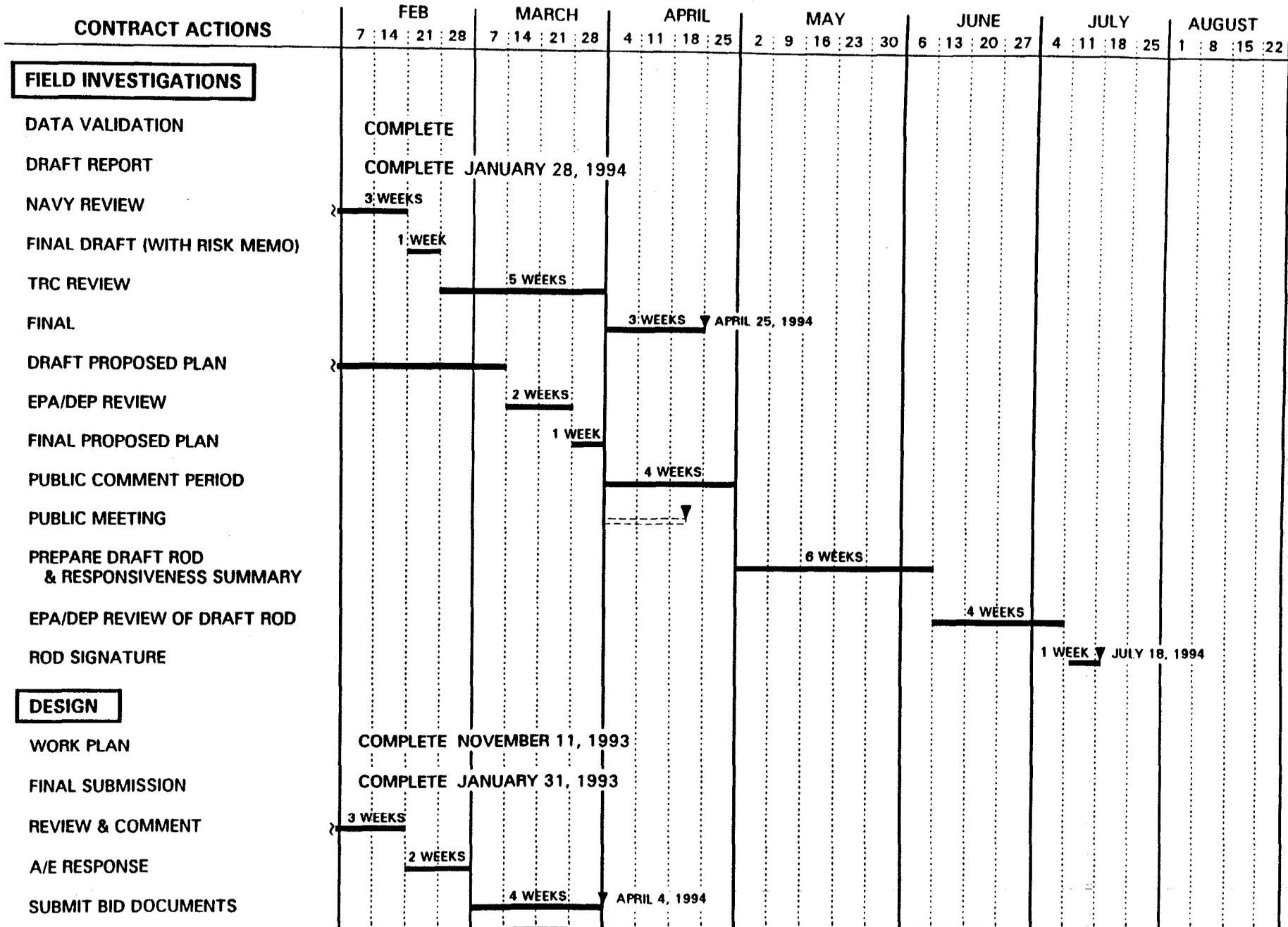
ATTACHMENT 1

BUILDING 31 STATUS

- CONSTRUCTION CONTRACT AWARDED - 30 SEPTEMBER 1993
 - NATIONAL ENVIRONMENTAL SERVICES CORPORATION
 - BLOOMINGTON, INDIANA
- TREATABILITY STUDY - FORRESTER ENVIRONMENTAL SERVICES, INC.
 - AWAITING RESULTS AND EVALUATION OF TREATABILITY STUDY REPORT
- PARTNERING SESSION - 21 JANUARY 1994
 - ATTENDANTS: SUBASE NLON, NESC, FESI & HNUS
- ROICC HAS APPROVED ALL CONSTRUCTION DELIVERABLES:
 - HEALTH & SAFETY PLAN
 - SOLIDIFICATION WORK PLAN
- CONSTRUCTION TO BEGIN AROUND 14 FEBRUARY 1994
 - CONSTRUCTION TO END PRIOR TO 15 APRIL 1994
- GROUNDWATER SAMPLING
 - SAMPLED ON 18 & 19 DECEMBER 1993
 - AWAITING RESULTS AND VALIDATION

ATTACHMENT 2

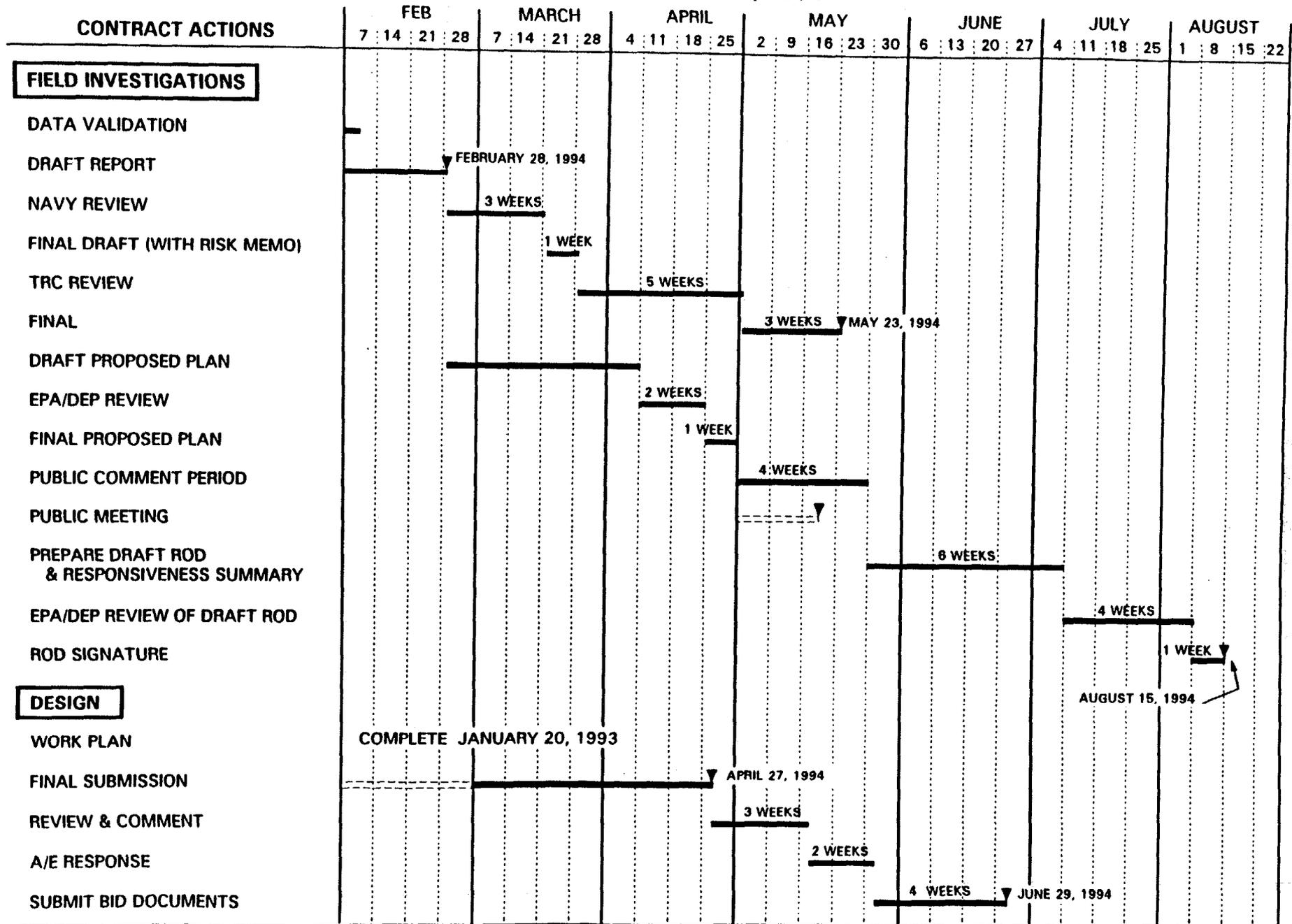
**DRMO
FEBRUARY 3, 1994**



ROD - RECORD OF DECISION

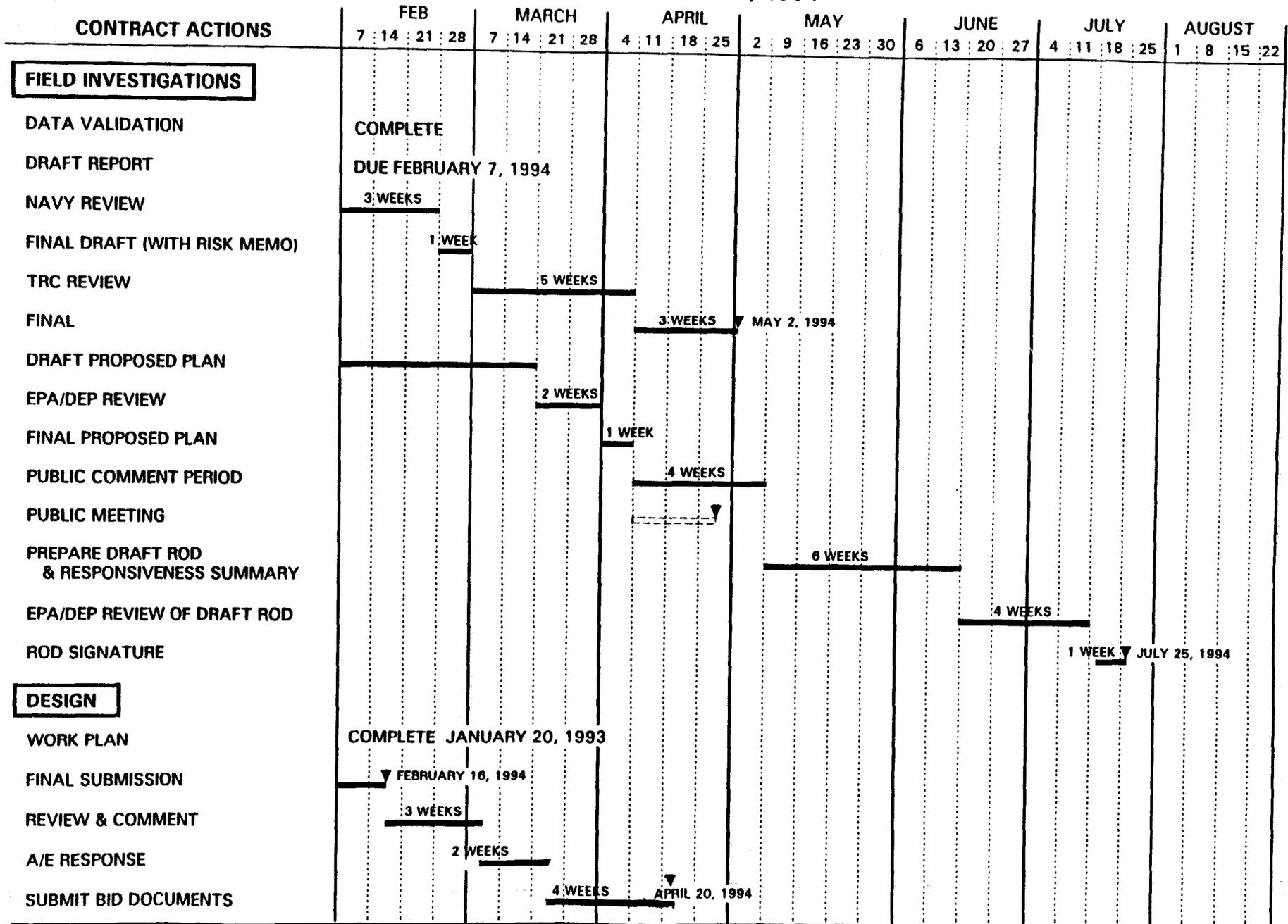
ATLANTIC

**AREA A DOWNSTREAM / OBDA
FEBRUARY 3, 1994**



ROD - RECORD OF DECISION

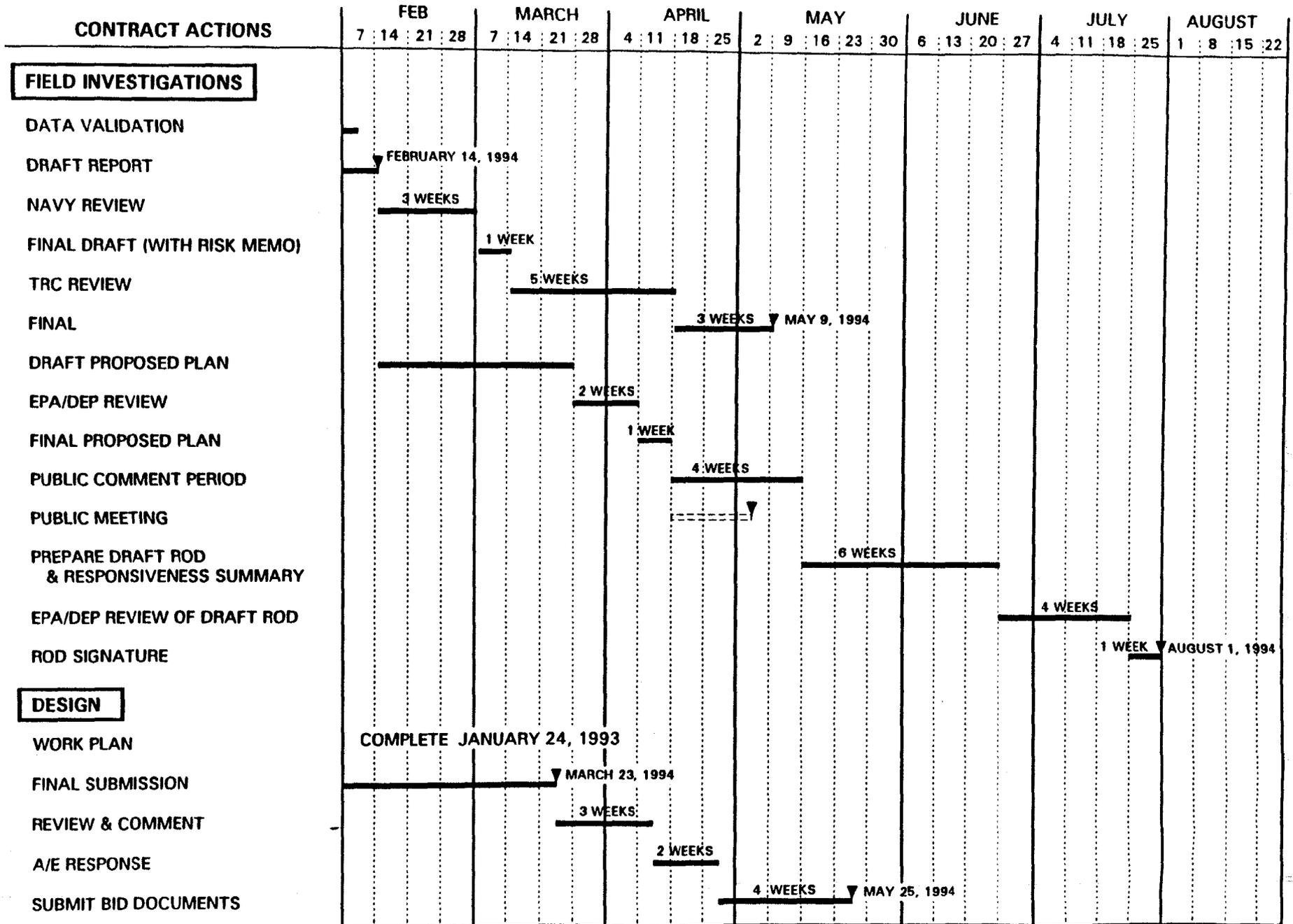
**SPENT ACID
FEBRUARY 3, 1994**



ROD - RECORD OF DECISION

ATLANTIC

AREA A LANDFILL FEBRUARY 3, 1994



ROD - RECORD OF DECISION

ATTACHMENT 3

TECHNICAL REVIEW COMMITTEE MEETING

INSTALLATION RESTORATION PROGRAM

NAVAL SUBMARINE BASE - NEW LONDON

GROTON, CONNECTICUT

FEBRUARY 3, 1994

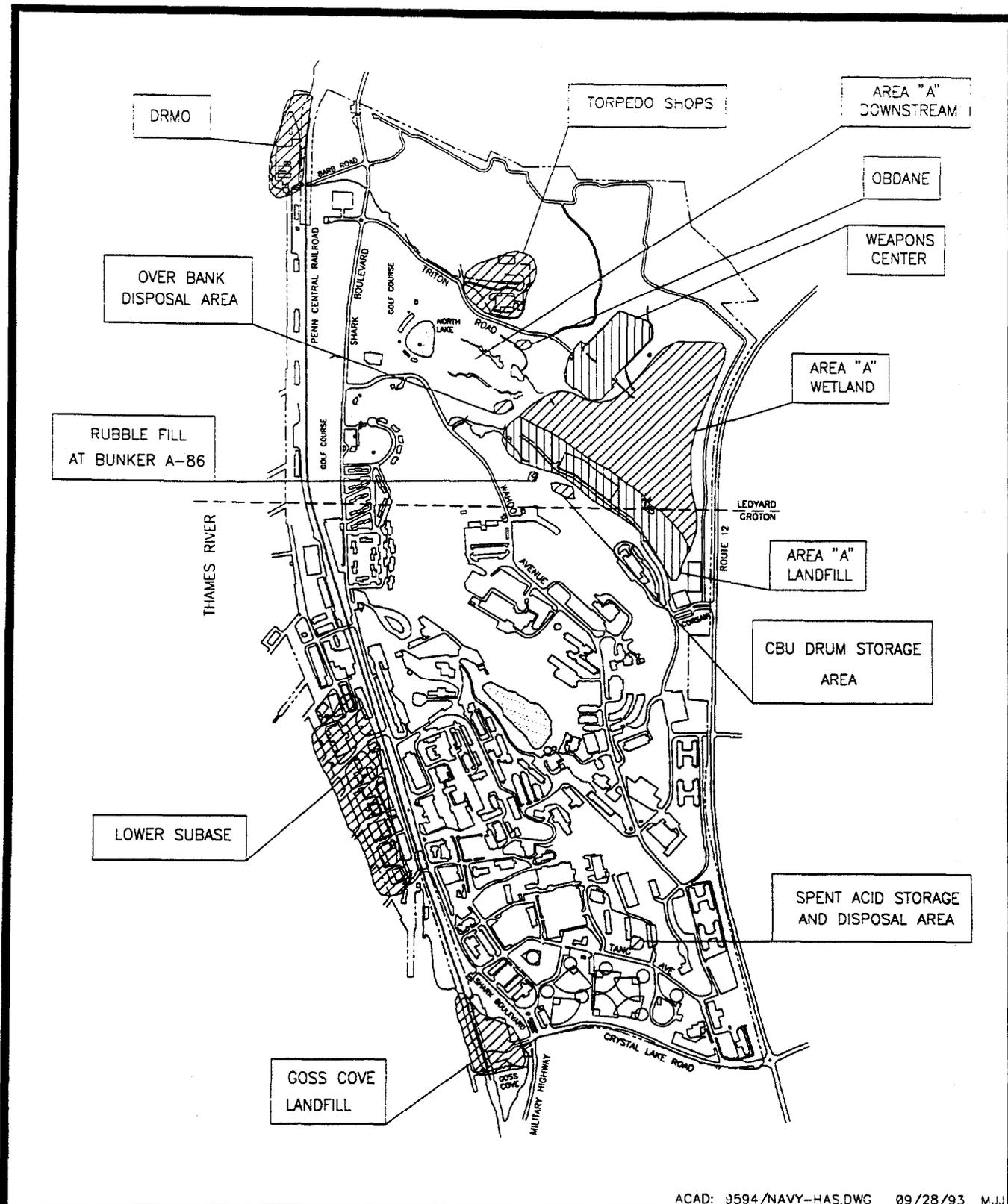
SCHEDULE

COMPLETE DRILLING - MID MARCH

1ST WATER LEVEL MEASUREMENT - MID MARCH

COMPLETE 1ST WELL SAMPLING - LATE MARCH

COMPLETE 2ND WELL SAMPLING - LATE JUNE



ACAD: J594/NAVY-HAS.DWG 09/28/93 MJJ

INSTALLATION RESTORATION STUDY
 NAVAL SUBMARINE BASE - NEW LONDON
 GROTON, CT

SOURCE: Naval Submarine Base
 Existing Conditions
 April 1985
 Laureiro Engineering Associates



0 600 1200
 GRAPHIC SCALE IN FEET

FIGURE 3
 INSTALLATION RESTORATION
 STUDY SITES

ATLANTIC ENVIRONMENTAL SERVICES, INC.

REFERENCE DOCUMENTS

ATLANTIC WP, FSP AND QA/QC PLANS; MAY, 1993.

- 1) THAMES RIVER
- 2) AREA A WETLAND
- 3) AREA A DOWNSTREAM / OBDA
- 4) AREA A LANDFILL
- 5) AREA A WEAPONS CENTER
- 6) DRMO
- 7) SPENT ACID STORAGE AND DISPOSAL AREA
- 8) LOWER SUBBASE
- 9) OBDANE
- 10) CBU DRUM STORAGE AREA
- 11) RUBBLE FILL AT BUNKER A-86
- 12) TORPEDO SHOPS
- 13) GOSS COVE LANDFILL

ATLANTIC PROPOSED IRA DOCUMENT; MARCH 23, 1993.

AREA A LANDFILL
AREA A DOWNSTREAM / OBDA
DRMO
SPENT ACID STORAGE AND DISPOSAL AREA

HNUS WP, FSP, QA/QC PLAN ADDENDA AND HASP; SEPTEMBER - NOVEMBER, 1993.

ALL WORK DETAILED IN ATLANTIC PLANS FOR 13 SITES, MINUS
HIGHLIGHTED WORK DETAILED IN IRA DOCUMENT

FUNDING AVAILABLE FOR ALL 13 SITES

WORK COMPLETED TO DATE

THAMES RIVER

ALL 16 SEDIMENT SAMPLES

(T1SD1,2,T2SD1,2,T3SD1,2,3,4,T4SD1,2,3,4,T5SD1,2,2,4)

14 SURFACE WATER SAMPLES (6SW1S,1B,T3SW1S,2S,3S,T3SW2B,3B,
T3SW1AS,1BS,T3SW1AB, 1BB,8SW1S,1B,2DSW13S)

5 CAGED MUSSELS PLUS 4 REPLICATES

6 MUSSEL, 4 OYSTER, AND 3 CLAM SAMPLES (INCLUDES 3 ADDITIONAL
SAMPLES)

AREA A WETLAND

3 WELLS (2WMW21S,21D,22D)

ALL 29 SEDIMENT SAMPLES (2WSD10-22, AND 27-42
(2WSD14,34,38,39,40,AND41 SENT TO LAB)

ALL 9 SURFACE WATER SAMPLES (2WSW1,2,6,7,8,9,10,11,12)

AREA A DOWNSTREAM/OBDA

ALL 13 WELLS (2DMW23D,24S,24D,25S,25D,26S,26D,27S,27D,28S,28D,29S,30S)

ALL 4 SEDIMENT (2DSD30,31,32,AND3SD6)

ALL 13 SURFACE WATER (2DSW2,3,4,5,7,9,10,11,14,15,30,31,32)

46 SOIL GAS POINTS NEAR 2DMW15D

4 GROUNDWATER SAMPLES (2DGW25S,25D,29S,30S)

WORK COMPLETED TO DATE (CONT.)

AREA A LANDFILL

4 WELLS (2LMW19S,19D,20S,20D)

2 TEST BORINGS (2LTB13,23)

6 GROUNDWATER SAMPLES (2LGW7S,8S,9S,13S,19S,20S)

AREA A WEAPONS CENTER

2 WELLS (2WCMW1S,2S)

7 TEST BORINGS (2WCTB1-7)

11 SEDIMENT SAMPLES (2WCSD4-15 LESS 11)

ALL 3 SURFACE WATER SAMPLES (2WCSW3,4,5)

DRMO

ALL 6 WELLS (6MW2D,3D,6S,6D,7S,8S)

3 GROUNDWATER SAMPLES (6GW1S,2S,7S)

SPENT ACID STORAGE AND DISPOSAL AREA

ALL 5 WELLS (15MW1S,1D,2S,3S,4S)

LOWER SUBBASE

1 WELL (13MW18)

15 TEST BORINGS (13TB2A,3A,4A,5A,6,7,8,9,11,12,13,15,16,17,WE-4A)

3 OPTIONAL WELLS (13MW19,20,21)

1 OPTIONAL BORING (13TB18)

WORK COMPLETED TO DATE (CONT.)

OBDANE

1 SEDIMENT SAMPLE (14SS3)

CBU DRUM STORAGE AREA

1 WELL (1MW1S)

2 TEST BORINGS (1TB1,2)

RUBBLE FILL AT BUNKER A-86

2 SEDIMENT SAMPLES (4SD1,2)

2 SURFACE WATER SAMPLES (4SW1,2)

TORPEDO SHOPS

ALL 2 SEDIMENT SAMPLES (7SD2,3)

1 SURFACE WATER SAMPLE (7SW1)

GOSS COVE LANDFILL

ALL 7 WELLS (8MW2D,5S,6S,6D,7S,8S,8D)

ALL 7 INITIAL TEST BORINGS (8TB4,5,6,7,8,9,10)

ALL 5 OPTIONAL BORINGS (8TB11,12,13,14,15)

3 GROUNDWATER SAMPLES (8GW2S,3,4)

ALL 5 SEDIMENT SAMPLES (8SD2,3,4,5,6)

ALL 5 SURFACE WATER SAMPLES (8SW2,3,4,5,6)

LAB ANALYSES STARTED

UPCOMING ACTIVITIES

THAMES RIVER

3 BLUE CRAB SAMPLES

AREA A WETLAND

1 WELL (2WMW5D)

11 GROUNDWATER SAMPLES (2WGW1D,2D, 3D,4D,5S,5D,6S,6D,21S,21D,22D)

AREA A DOWNSTREAM/OBDA

14 GROUNDWATER SAMPLES

(2DGW10D,11S,11D,15D,16S,16D,24S,24D,26S,26D,27S,27D,28S,28D)

AREA A LANDFILL

1 PUMPING WELL AND 4 OBSERVATION WELLS

PUMPING TEST

11 GROUNDWATER SAMPLES

(2LGW7D,8D,9D,13D,14D,17S,17D,18S,18D,19D,20D)

AREA A WEAPONS CENTER

1 WELL (2WCMW3S)

1 TEST BORING (2WCTB8)

3 SEDIMENT SAMPLES (2WCSD1,2,3)

3 GROUNDWATER SAMPLES (2WCGW1S,2S,3S)

DRMO

7 GROUNDWATER SAMPLES (6GW2D,3S,3D,4S,6S,6D,8S)

UPCOMING ACTIVITIES (CONT.)

SPENT ACID STORAGE AND DISPOSAL AREA

1 SEDIMENT SAMPLE (15SD1)

5 GROUNDWATER SAMPLES (15GW1S,1D,2S,3S,4S)

LOWER SUBBASE

2 TEST BORINGS (13TB10,14)

28 GROUNDWATER SAMPLES
(13GW1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,NESO4,6,10,11,WE1,4,5)

OBDANE

1 WELL (14MW1S)

2 TEST BORINGS (14TB1,2)

1 GROUNDWATER SAMPLE (14GW1S)

CBU DRUM STORAGE AREA

1 GROUNDWATER SAMPLE (1GW1S)

RUBBLE FILL AT BUNKER A-86

5 WELLS (4MW1S,2S,3S,4S,4D)

3 TEST BORINGS (4TB1,2,3)

7 SOIL SAMPLES (4SS4,5,6,7,8,9,10)

5 GROUNDWATER SAMPLES (4GW1S,2S,3S,4S,4D)

UPCOMING ACTIVITIES (CONT.)

TORPEDO SHOPS

SOIL GAS SURVEY

10 WELLS (7MW2D,3D,4S,5S,5D,6S,7S,8S,9S,10S)

10 TEST BORINGS (7TB7,8,9,10,11,12,13,14,15,16)

5 OPTIONAL TEST BORINGS IF NEEDED (7TB17,18,19,20,21)

13 GROUNDWATER SAMPLES (7GW1D,2S,2D,3S,3D,4S,5S,5D,6S,7S,8S,9S,10S)

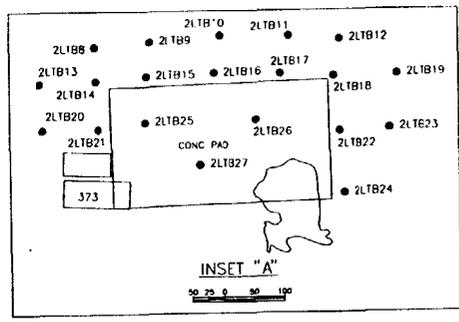
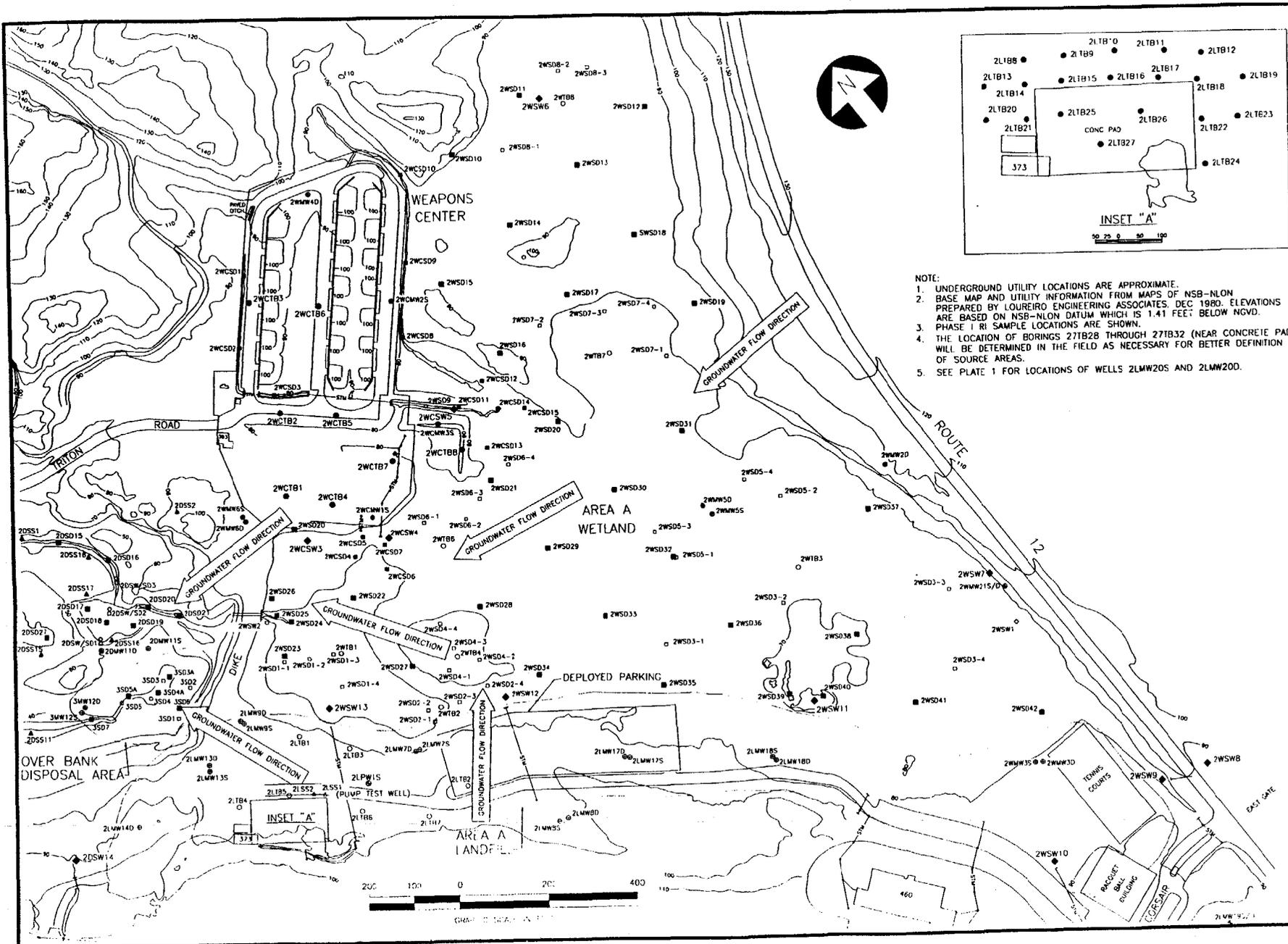
GOSS COVE LANDFILL

3 AIR SAMPLES (8AS1,2,3)

GROUNDWATER SAMPLES (8GW1,2D,5S,6S,6D,7S,8S,8D)

**MONTHLY WATER LEVEL MEASUREMENTS FOR
ONE YEAR**

HYDRAULIC CONDUCTIVITY TESTING



- NOTE:
1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
 2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON PREPARED BY LOUREIRO ENGINEERING ASSOCIATES, DEC 1980. ELEVATIONS ARE BASED ON NSB-NLON DATUM WHICH IS 1.41 FEET BELOW NGVD.
 3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
 4. THE LOCATION OF BORINGS 27TB28 THROUGH 27TB32 (NEAR CONCRETE PAD) WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS.
 5. SEE PLATE 1 FOR LOCATIONS OF WELLS 2LMW20S AND 2LMW20D.

FIGURE 4
 FIELD SAMPLING PLAN
 AREA A LANDFILL, WETLAND
 AND WEAPONS CENTER
 ATLANTIC ENVIRONMENTAL SERVICES, INC.

LEGEND

EXIST. PROD.	EXIST. CONTOUR
MONITORING WELL	BUILDING NO.
TEST BORING	WATERCOURSE
SEDIMENT SAMPLE	STORM SEWER
SURFACE SOIL SAMPLE	CATCH BASIN
SURFACE WATER SAMPLE	

INSTALLATION RESTORATION STUDY
 NAVAL SUBMARINE BASE-NEW LONDON
 GROTON, CONN.

ACAD 9584/AM-ESP.DWG 09/28/91 0.2



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 3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
 4. THE LOCATION OF SURFACE SOIL SAMPLES 2DSS19 THROUGH 2DSS23 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS.

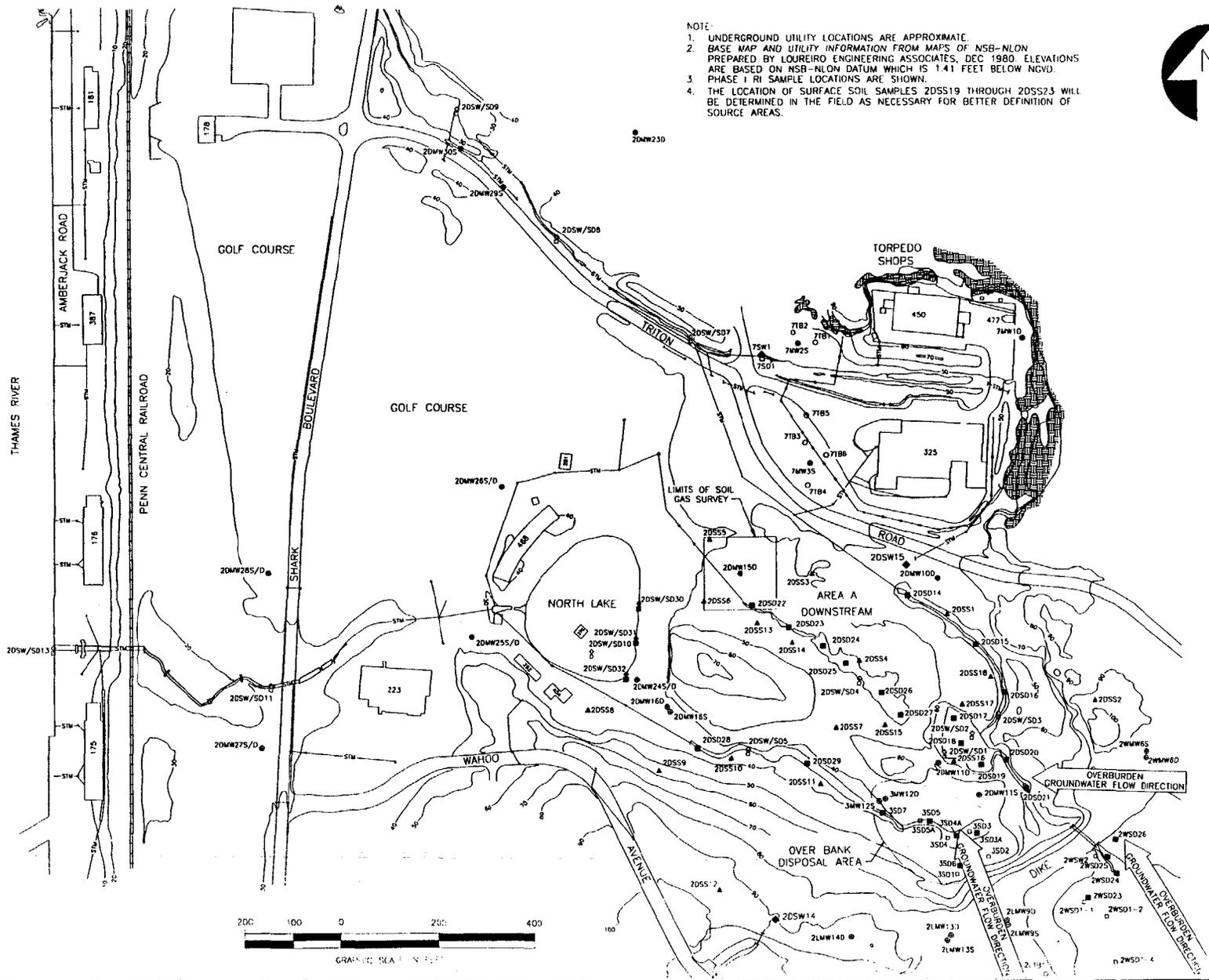


FIGURE 5

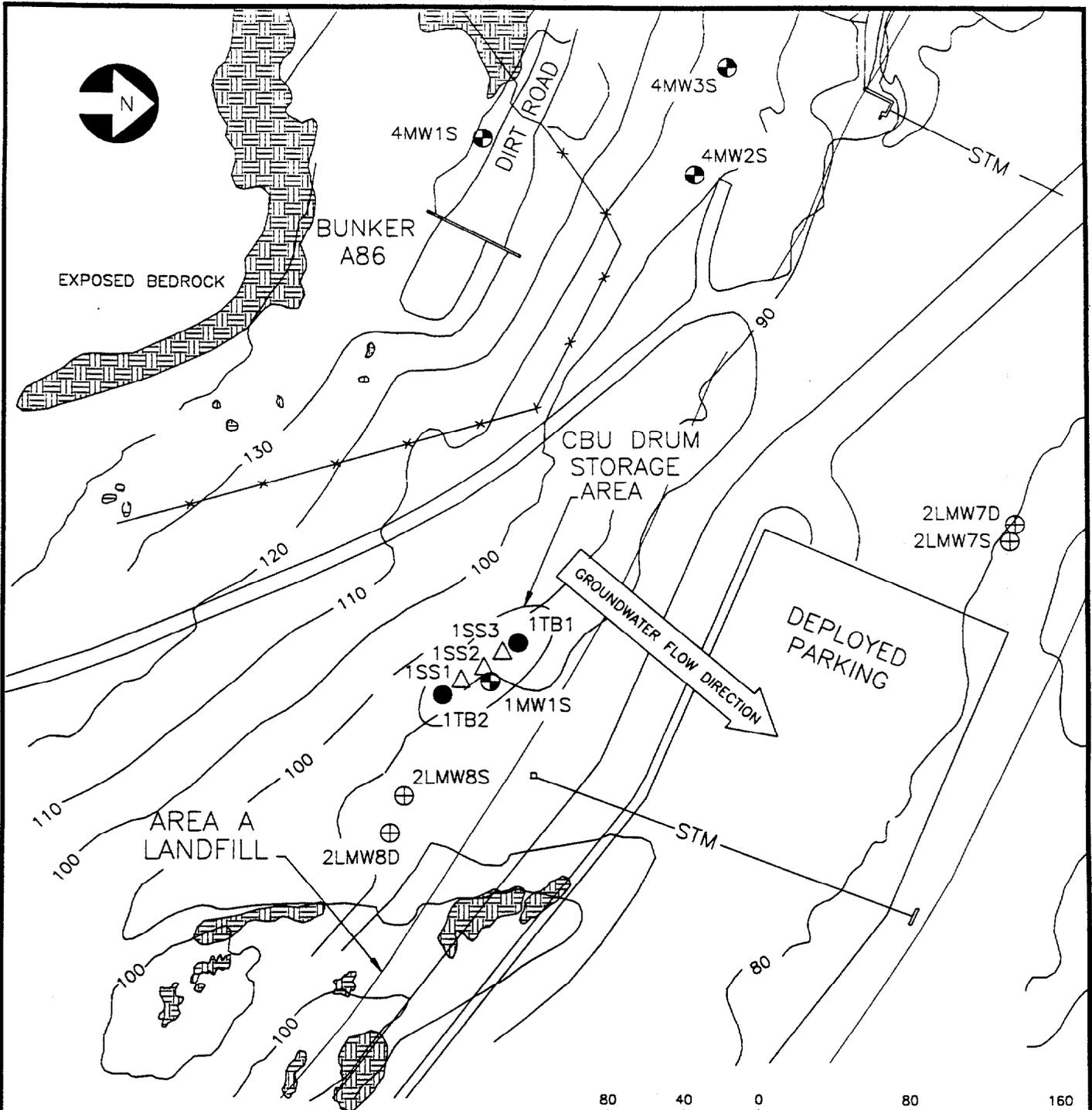
FIELD SAMPLING PLAN
AREA A DOWNSTREAM/OBDA

LEGEND

—10—	EXIST. CONTOUR
123	BUILDING No.
—	WATERCOURSE
—STM—	STORM SEWER
□	CATCH BASIN

⊕	EXIST. PROP.	⊕	MONITORING WELL
○	TEST BORING	○	7185 SURFACE SOIL SAMPLE
□	SEDIMENT SAMPLE	△	7555 SURFACE SOIL SAMPLE
△	7555 SURFACE SOIL SAMPLE	○	2DSS19 SURFACE WATER SAMPLE
○	2DSS19 SURFACE WATER SAMPLE		

INSTALLATION RESTORATION STUDY
NEW LONDON
GROTON, CONN.

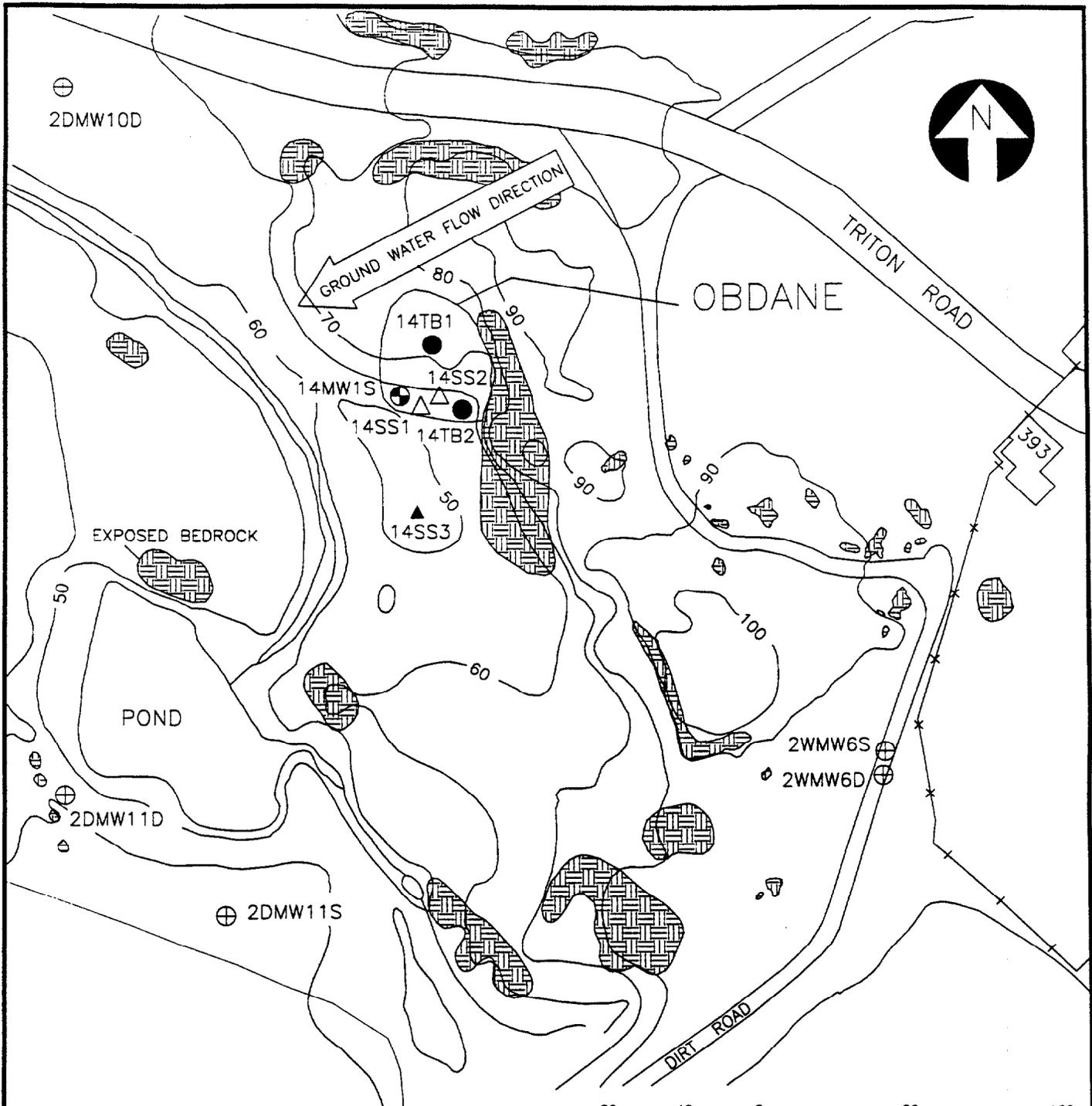


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ACAD: 9594/CBU-FSP.DWG 09/28/93 MJJ

LEGEND																									
<p style="text-align: center;">INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-right: 1px solid black; padding: 2px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">EXIST.</th> <th style="text-align: left; border-bottom: 1px solid black;">PROP.</th> </tr> <tr> <td style="border-bottom: 1px solid black;">⊕ 6MW1</td> <td style="border-bottom: 1px solid black;">⊕ 7MW5 MONITORING WELL</td> </tr> <tr> <td style="border-bottom: 1px solid black;">○ 6TB1</td> <td style="border-bottom: 1px solid black;">● 7TB5 TEST BORING</td> </tr> <tr> <td style="border-bottom: 1px solid black;">□ 20SD1</td> <td style="border-bottom: 1px solid black;">■ 20SD5 SEDIMENT SAMPLE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">△ 6SS1</td> <td style="border-bottom: 1px solid black;">▲ 7SS5 SURFACE SOIL SAMPLE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">◇ 20SW1</td> <td style="border-bottom: 1px solid black;">◆ 20SW5 SURFACE WATER SAMPLE</td> </tr> </table> </td> <td style="width: 50%; padding: 2px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">— 10 —</td> <td style="border-bottom: 1px solid black;">EXIST CONTOUR</td> </tr> <tr> <td style="border-bottom: 1px solid black;">123</td> <td style="border-bottom: 1px solid black;">BUILDING No.</td> </tr> <tr> <td style="border-bottom: 1px solid black;">— — —</td> <td style="border-bottom: 1px solid black;">WATERCOURSE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">— STM —</td> <td style="border-bottom: 1px solid black;">STORM SEWER</td> </tr> <tr> <td style="border-bottom: 1px solid black;">□</td> <td style="border-bottom: 1px solid black;">CATCH BASIN</td> </tr> </table> </td> </tr> </table>	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">EXIST.</th> <th style="text-align: left; border-bottom: 1px solid black;">PROP.</th> </tr> <tr> <td style="border-bottom: 1px solid black;">⊕ 6MW1</td> <td style="border-bottom: 1px solid black;">⊕ 7MW5 MONITORING WELL</td> </tr> <tr> <td style="border-bottom: 1px solid black;">○ 6TB1</td> <td style="border-bottom: 1px solid black;">● 7TB5 TEST BORING</td> </tr> <tr> <td style="border-bottom: 1px solid black;">□ 20SD1</td> <td style="border-bottom: 1px solid black;">■ 20SD5 SEDIMENT SAMPLE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">△ 6SS1</td> <td style="border-bottom: 1px solid black;">▲ 7SS5 SURFACE SOIL SAMPLE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">◇ 20SW1</td> <td style="border-bottom: 1px solid black;">◆ 20SW5 SURFACE WATER SAMPLE</td> </tr> </table>	EXIST.	PROP.	⊕ 6MW1	⊕ 7MW5 MONITORING WELL	○ 6TB1	● 7TB5 TEST BORING	□ 20SD1	■ 20SD5 SEDIMENT SAMPLE	△ 6SS1	▲ 7SS5 SURFACE SOIL SAMPLE	◇ 20SW1	◆ 20SW5 SURFACE WATER SAMPLE	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">— 10 —</td> <td style="border-bottom: 1px solid black;">EXIST CONTOUR</td> </tr> <tr> <td style="border-bottom: 1px solid black;">123</td> <td style="border-bottom: 1px solid black;">BUILDING No.</td> </tr> <tr> <td style="border-bottom: 1px solid black;">— — —</td> <td style="border-bottom: 1px solid black;">WATERCOURSE</td> </tr> <tr> <td style="border-bottom: 1px solid black;">— STM —</td> <td style="border-bottom: 1px solid black;">STORM SEWER</td> </tr> <tr> <td style="border-bottom: 1px solid black;">□</td> <td style="border-bottom: 1px solid black;">CATCH BASIN</td> </tr> </table>	— 10 —	EXIST CONTOUR	123	BUILDING No.	— — —	WATERCOURSE	— STM —	STORM SEWER	□	CATCH BASIN
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□ 20SD1	■ 20SD5 SEDIMENT SAMPLE																								
△ 6SS1	▲ 7SS5 SURFACE SOIL SAMPLE																								
◇ 20SW1	◆ 20SW5 SURFACE WATER SAMPLE																								
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123	BUILDING No.																								
— — —	WATERCOURSE																								
— STM —	STORM SEWER																								
□	CATCH BASIN																								
<p style="margin: 0;">FIGURE 6 FIELD SAMPLING PLAN CBU DRUM STORAGE AREA</p> <p style="margin: 0; font-size: small;">ATLANTIC ENVIRONMENTAL SERVICES, INC.</p>																									



- NOTE:
1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
 2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON PREPARED BY LOUREIRO ENGINEERING ASSOCIATES, DEC 1980. ELEVATIONS ARE BASED ON NSB-NLON DATUM WHICH IS 1.41 FEET BELOW NGVD.
 3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.

ACAD: 9594/OBD-FSP.DWG 09/28/93 MJJ

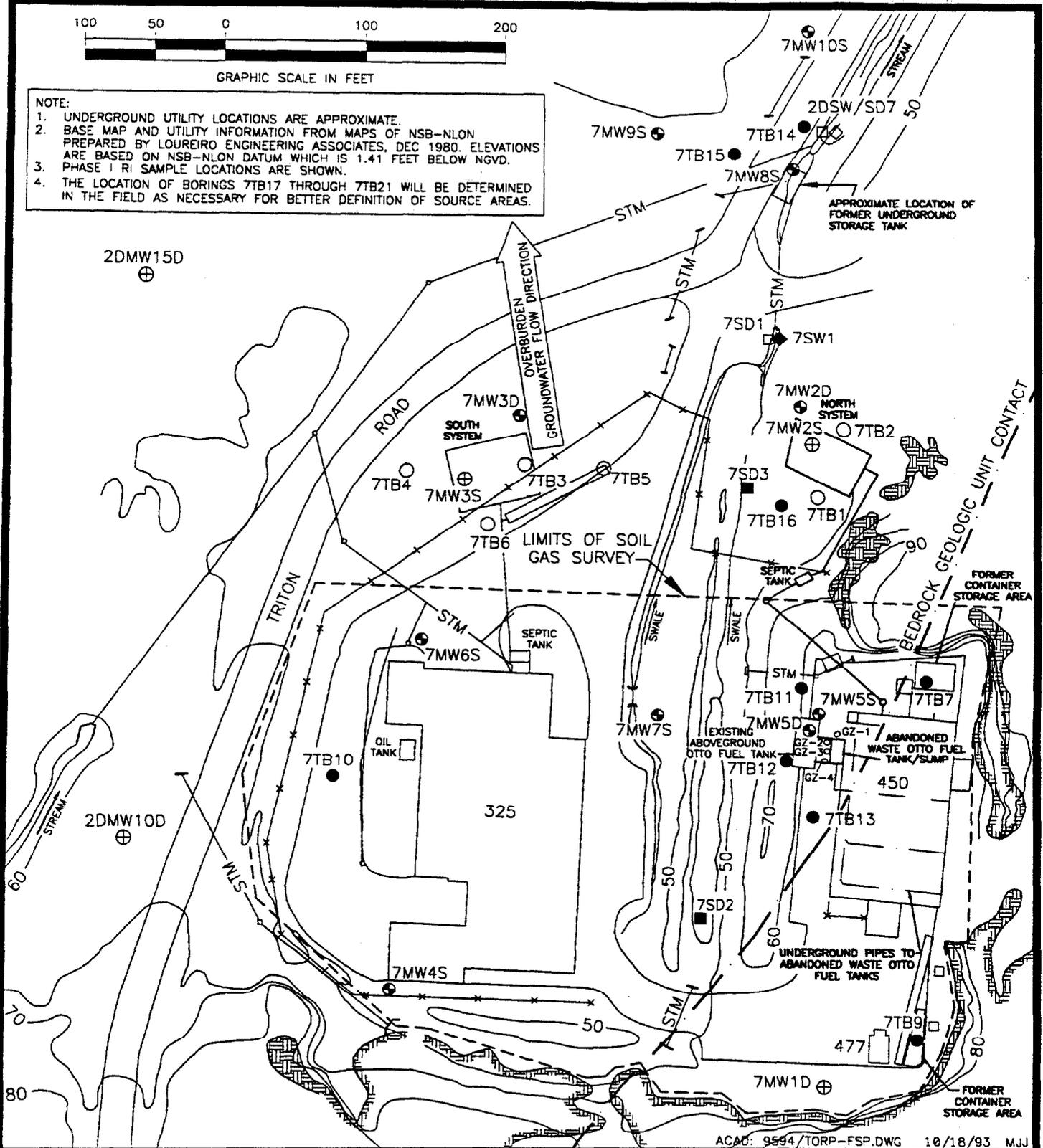
INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND		FIGURE 7 FIELD SAMPLING PLAN OBDANE
	EXIST. PROP. ⊕ 6MW1 ⊕ 7MW5 MONITORING WELL ○ 6TB1 ● 7TB5 TEST BORING □ 20SD1 ■ 20SD5 SEDIMENT SAMPLE △ 6SS1 ▲ 7SS5 SURFACE SOIL SAMPLE ◇ 20SW1 ◆ 5SDSW5 SURFACE WATER SAMPLE	—10— EXIST CONTOUR 123 BUILDING No. ~~~~~ WATERCOURSE —STM— STORM SEWER □ CATCH BASIN	

100 50 0 100 200

GRAPHIC SCALE IN FEET

NOTE:

1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON PREPARED BY LOUREIRO ENGINEERING ASSOCIATES, DEC 1980. ELEVATIONS ARE BASED ON NSB-NLON DATUM WHICH IS 1.41 FEET BELOW NGVD.
3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
4. THE LOCATION OF BORINGS 7TB17 THROUGH 7TB21 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS.



ACAD: 9594/TORP-FSP.DWG 10/18/93 MJJ

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT

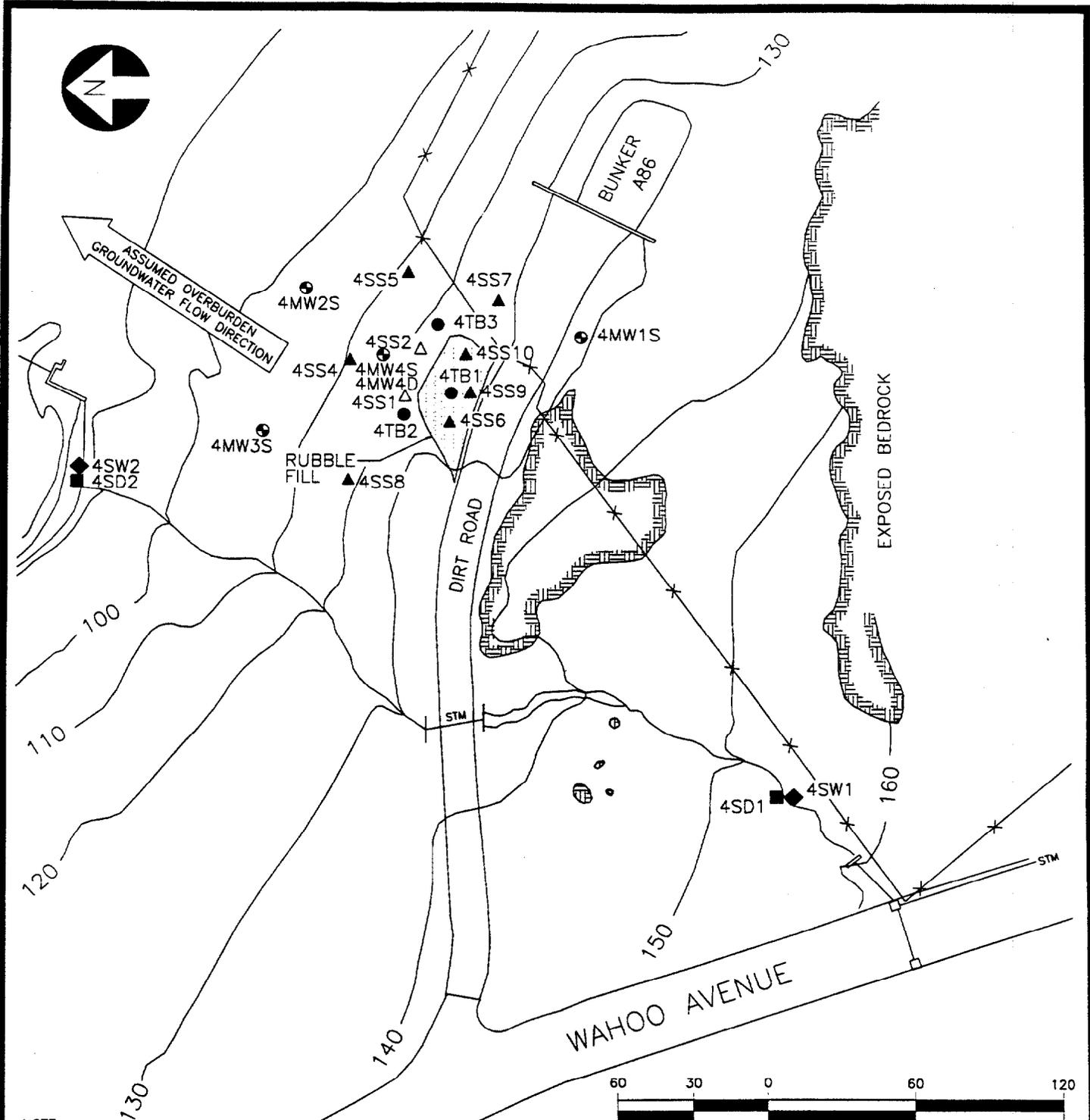
EXIST.	PROP.	
⊕	⊕	6MW1 7MW5 MONITORING WELL
○	●	6TB1 7TB5 TEST BORING
□	■	2DS1 2DS5 SEDIMENT SAMPLE
△	▲	6SS1 7SS5 SURFACE SOIL SAMPLE
◇	◆	2DSW1 2DSWS SURFACE WATER SAMPLE
○	○	GZ-1 WELL BY OTHERS

LEGEND

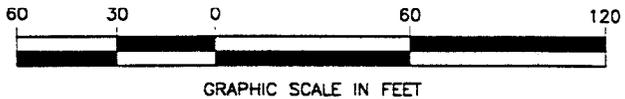
—10—	EXIST CONTOUR
123	BUILDING No.
—	WATERCOURSE
—STM—	STORM SEWER
□	CATCH BASIN

FIGURE 9
FIELD SAMPLING PLAN
TORPEDO SHOPS

ATLANTIC ENVIRONMENTAL SERVICES, INC.



- NOTE:
1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
 2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON PREPARED BY LOUREIRO ENGINEERING ASSOCIATES, DEC 1980. ELEVATIONS ARE BASED ON NSB-NLON DATUM WHICH IS 1.41 FEET BELOW NGVD.
 3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.



ACAD: 9594/BUNK-FSP.DWG 09/28/93 M.JJ

INSTALLATION RESTORATION STUDY
 NAVAL SUBMARINE BASE - NEW LONDON
 GROTON, CT

LEGEND

EXIST.	PROP.		
⊕	⊕	6MW1	7MW5 MONITORING WELL
○	●	6TB1	7TB5 TEST BORING
□	■	6SD1	7SD5 SEDIMENT SAMPLE
△	▲	6SS1	7SS5 SURFACE SOIL SAMPLE
◇	◆	6SW1	7SW5 SURFACE WATER SAMPLE
— 10 —			EXIST CONTOUR
123			BUILDING No.
~~~~~			WATERCOURSE
— STM —			STORM SEWER
□			CATCH BASIN

FIGURE 8  
 FIELD SAMPLING PLAN  
 RUBBLE FILL AT BUNKER A86  
 ATLANTIC ENVIRONMENTAL SERVICES, INC.

- NOTE:
1. UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE.
  2. BASE MAP AND UTILITY INFORMATION FROM MAPS OF NSB-NLON PREPARED BY LOUISBERG ENGINEERING ASSOCIATES, DEC 1980. ELEVATIONS ARE BASED ON NSB-NLON DATUM WHICH IS 1.41 FEET BELOW MGD.
  3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
  4. THE LOCATION OF BORINGS B1B1 THROUGH B1B15 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS.



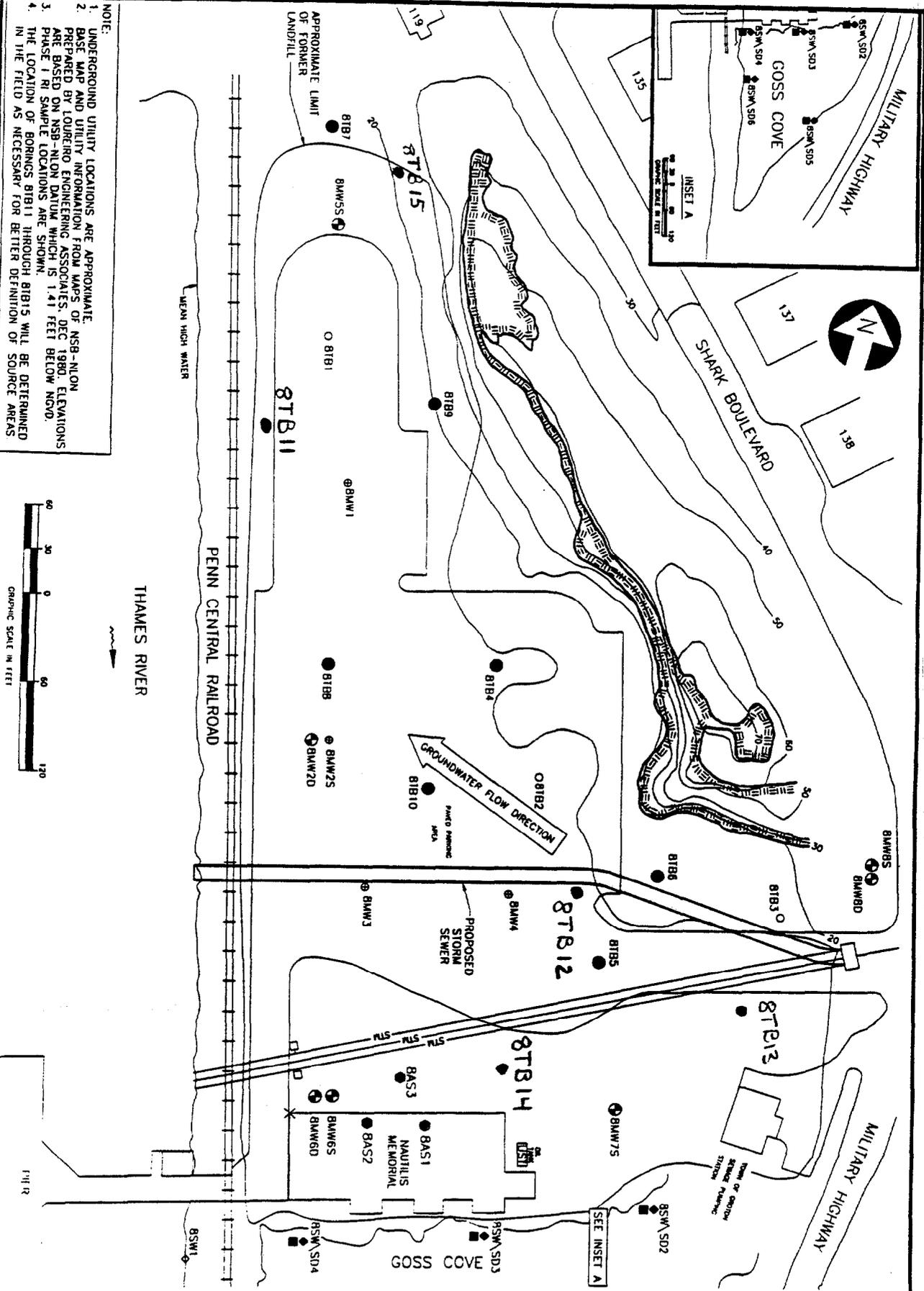
Fig 12

INSTALLATION RESTORATION STUDY  
 NAVAL SUBMARINE BASE-NEW LONDON  
 GROTON, CONN.

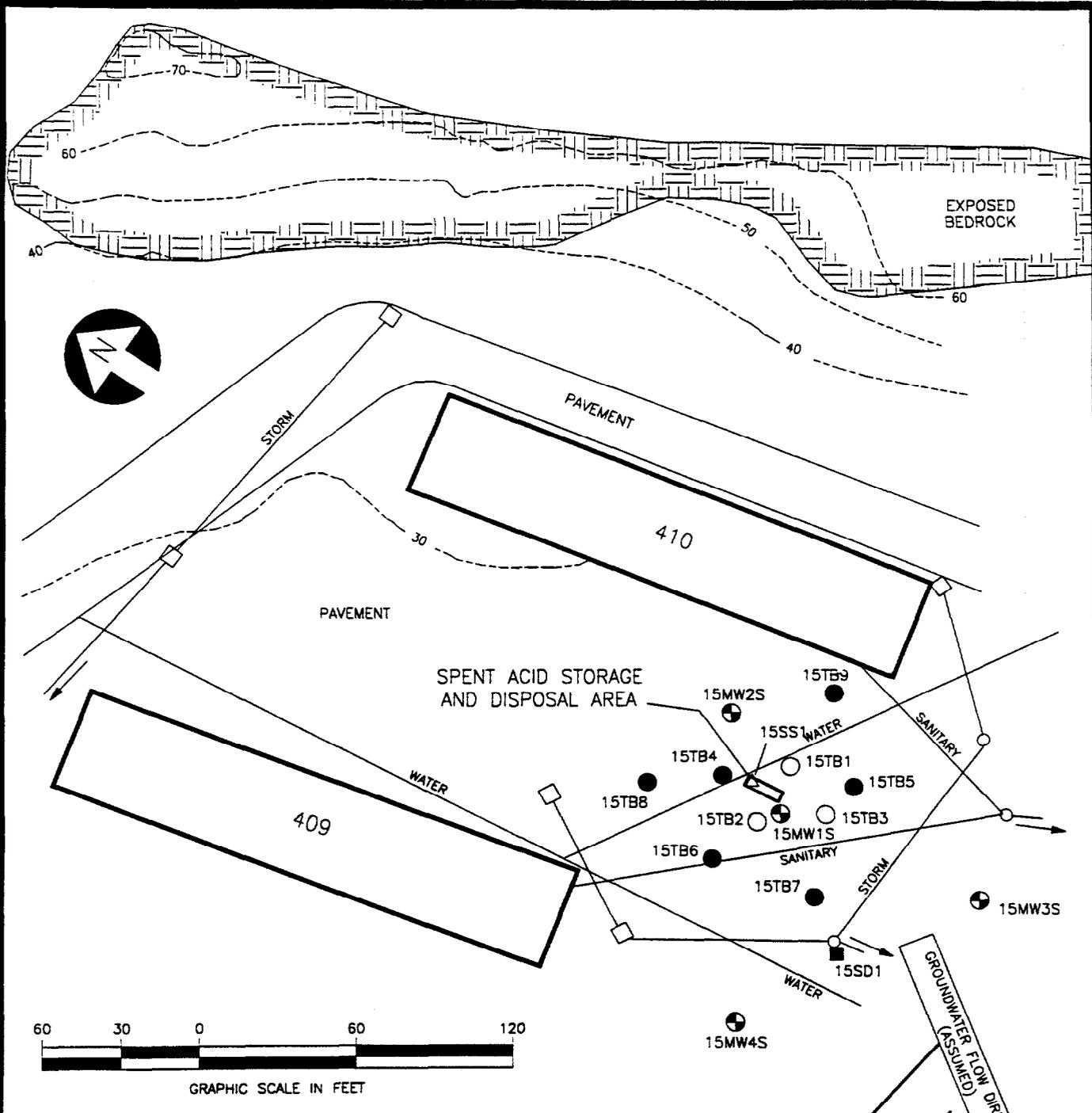
EXIST.	PROP.
⊕ B1B1	⊕ 71025 MONITORING WELL
○ B1B1	● 7185 TEST BORING
□ 20501	□ 20503 SEDIMENT SAMPLE
● 8451	● 8451 AIR SAMPLE
◇ 20501	◇ 20503 SURFACE WATER SAMPLE

— 10 —	EXIST CONTOUR
123	BUILDING No.
— — —	WATERCOURSE
— STW —	STORM SEWER
[ ]	CATCH BASIN

FIGURE 10  
 FIELD SAMPLING PLAN  
 GOSS COVE LANDFILL  
 ATLANTIC ENVIRONMENTAL SERVICES, INC.



ACAD 554/GOSS-F-55-DWG 6/82/72/68

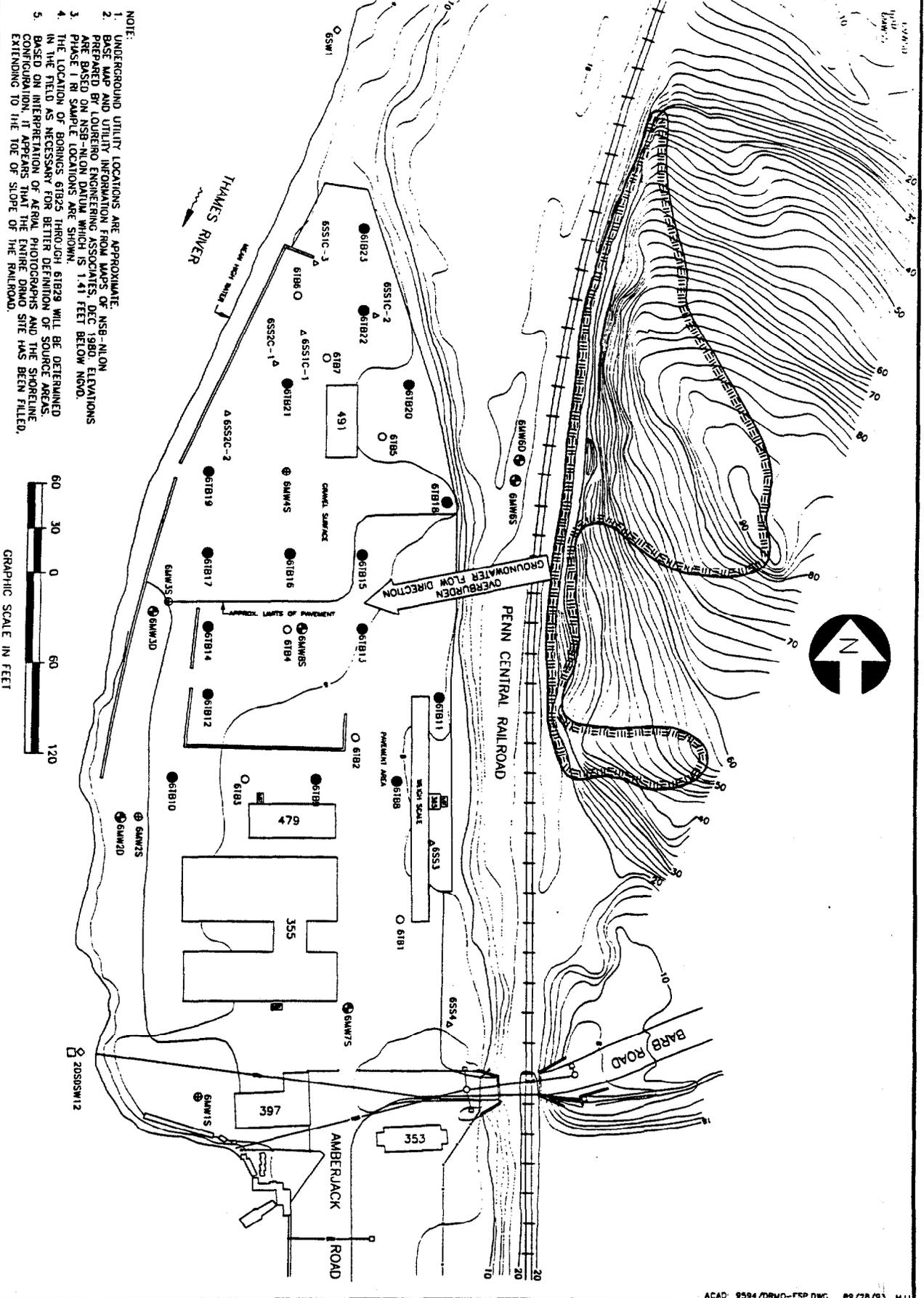
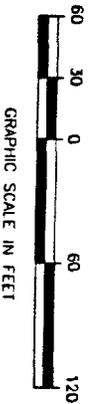


- NOTE:
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  3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
  4. THE LOCATION OF BORINGS 15TB10 THROUGH 15TB14 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS.

ACAD: 9594/ACID-FSP.DWG 09/28/93 MJJ

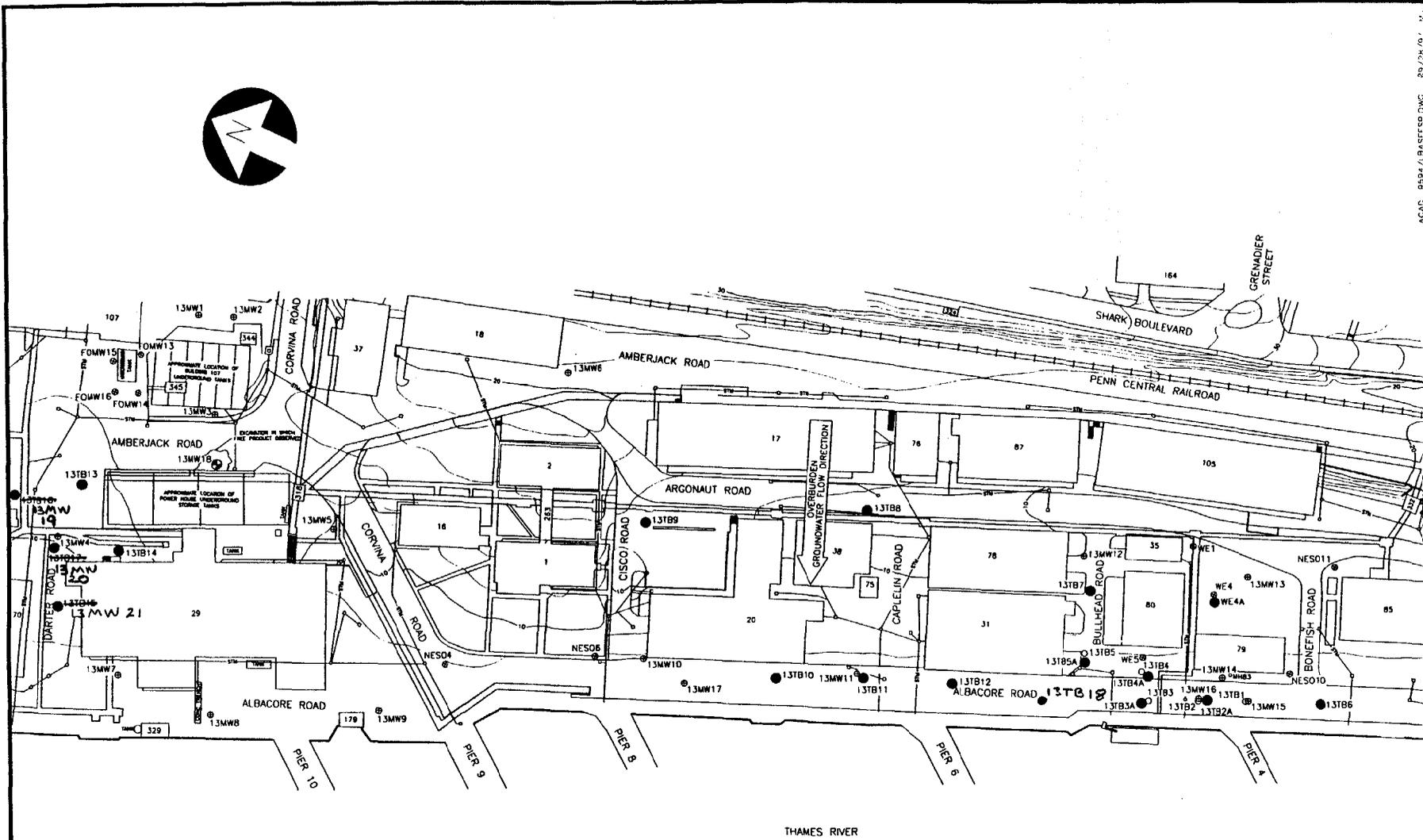
INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND		FIGURE 11 FIELD SAMPLING PLAN SPENT ACID STORAGE AND DISPOSAL AREA ATLANTIC ENVIRONMENTAL SERVICES, INC.																		
	<table border="0"> <tr> <td>⊕ 15MW1</td> <td>⊕ 15MW1 MONITORING WELL</td> </tr> <tr> <td>○ 15TB1</td> <td>● 15TB1 TEST BORING</td> </tr> <tr> <td>□ 15SD1</td> <td>■ 15SD1 SEDIMENT SAMPLE</td> </tr> <tr> <td>△ 15SS1</td> <td>▲ 15SS1 SURFACE SOIL SAMPLE</td> </tr> <tr> <td>◇ 15SW1</td> <td>◆ 15SW1 SURFACE WATER SAMPLE</td> </tr> </table>	⊕ 15MW1		⊕ 15MW1 MONITORING WELL	○ 15TB1	● 15TB1 TEST BORING	□ 15SD1	■ 15SD1 SEDIMENT SAMPLE	△ 15SS1	▲ 15SS1 SURFACE SOIL SAMPLE	◇ 15SW1	◆ 15SW1 SURFACE WATER SAMPLE	<table border="0"> <tr> <td>—10—</td> <td>EXIST CONTOUR</td> </tr> <tr> <td>123</td> <td>BUILDING No.</td> </tr> <tr> <td>— — —</td> <td>WATERCOURSE</td> </tr> <tr> <td>○</td> <td>MANHOLE</td> </tr> <tr> <td>□</td> <td>CATCH BASIN</td> </tr> </table>	—10—	EXIST CONTOUR	123	BUILDING No.	— — —	WATERCOURSE	○	MANHOLE
⊕ 15MW1	⊕ 15MW1 MONITORING WELL																				
○ 15TB1	● 15TB1 TEST BORING																				
□ 15SD1	■ 15SD1 SEDIMENT SAMPLE																				
△ 15SS1	▲ 15SS1 SURFACE SOIL SAMPLE																				
◇ 15SW1	◆ 15SW1 SURFACE WATER SAMPLE																				
—10—	EXIST CONTOUR																				
123	BUILDING No.																				
— — —	WATERCOURSE																				
○	MANHOLE																				
□	CATCH BASIN																				

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  3. THE LOCATION OF BORINGS 61825 THROUGH 61829 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF SOURCE AREAS. CONFIGURATION, IT APPEARS THAT THE FINE SANDS AND SILT ARE EXTENDING TO THE TOE OF SLOPE OF THE RAILROAD.



ACAD: 9594/DRMO-FSP.DWG 09/28/93 M.J.J.

<p>INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE-NEW LONDON GROTON, CONN.</p>		<p>LEGEND</p>		<p>FIGURE 12 FIELD SAMPLING PLAN DRMO</p>	
<p>EXIST. PROP.</p> <p>⊙ 61811 ⊙ 7185 MONITORING WELL</p> <p>○ 61812 ⊙ 7186 TEST BORING</p> <p>□ 20801 ⊙ 20805 SEDIMENT SAMPLE</p> <p>△ 6551 △ 7255 SURFACE SOIL SAMPLE</p> <p>◇ 205W1 ⊙ 205W5 SURFACE WATER SAMPLE</p>	<p>— 10 — EXIST CONTOUR</p> <p>123 BUILDING No.</p> <p>— WATERCOURSE</p> <p>— STW — STORM SEWER</p> <p>□ CATCH BASIN</p>				
<p>ATLANTIC ENVIRONMENTAL SERVICES, INC.</p>					



ACAD: 85844, BASECO, INC. 8/24/91

LEGEND

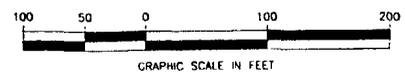
FIGURE 1.3  
 FIELD SAMPLING PLAN  
 LOWER BASE

10 — EXIST CONTOUR  
 BUILDING No. 123  
 WATERCOURSE  
 STW — STORM SEWER  
 CATCH BASIN

EXIST. PROP.  
 MONITORING WELL  
 TEST BORING  
 20S01 ■ 20S05 SEDIMENT SAMPLE  
 8S1 ▲ 7S5 SURFACE SOIL SAMPLE  
 20S41 ● 20S45 SURFACE WATER SAMPLE

INSTALLATION RESTORATION STUDY  
 NAVAL SUBMARINE BASE—NEW LONDON  
 GROTON, CONN.

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  3. PHASE I RI SAMPLE LOCATIONS ARE SHOWN.
  4. THE LOCATION OF BORINGS 13TB18 THROUGH 13TB22 WILL BE DETERMINED IN THE FIELD AS NECESSARY FOR BETTER DEFINITION OF EXTENT OF CONTAMINATION.



ATLANTIC ENVIRONMENTAL SERVICES, INC.

**ATTACHMENT 4**

# **ECOLOGICAL FIELD WORK IN AREA A DOWNSTREAM**

## **SEDIMENTS/STREAMS AND PONDS**

**COLLECTION OF BENTHIC INVERTEBRATES FROM STREAMS AND PONDS**

**COLLECTION OF FROGS FOR BODY BURDEN ANALYSIS**

**QUALITATIVE FISH SURVEY**

**SEDIMENT BIOASSAYS**

## **SOILS**

**QUALITATIVE SOIL INVERTEBRATE SURVEY**

**COLLECTION OF NATIVE EARTHWORMS TO ASSESS BIOACCUMULATION**

**IN-SITU EARTHWORM BIOASSAYS**

**ANALYSIS OF INTRODUCED EARTHWORMS FROM BIOASSAYS**

# **THAMES RIVER ECOLOGICAL FIELD WORK**

**SEDIMENT SAMPLING**

**WATER SAMPLING**

**CAGED MUSSEL STUDY**

**COLLECTION OF BIVALVE SHELLFISH**

**COLLECTION OF BLUE CRABS**



