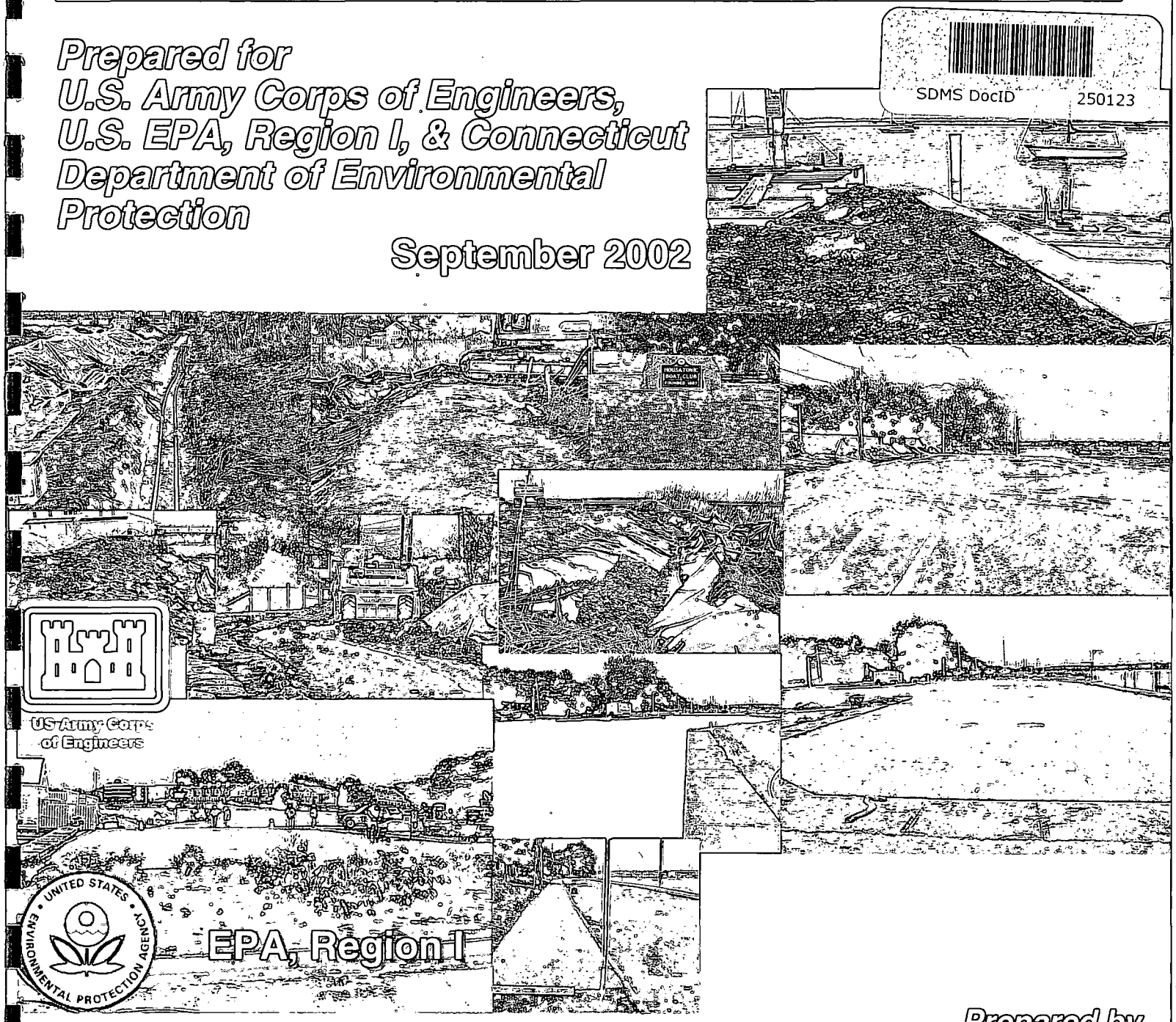
Interim Removal Action Report
Non-Time Critical Removal Action

Operable Unit No. 5: Raymark - Shore Road Site
Stratford, Connecticut
EPA CERCLIS ID No. CT 001186618

Prepared for
U.S. Army Corps of Engineers,
U.S. EPA, Region I, & Connecticut Department of Environmental Protection

September 2002

SDMS DocID 250123



US Army Corps of Engineers

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

EPA, Region I

Prepared by

Stone & Webster™
A Shaw Group Company

Administrative Records Center

Stone & Webster

A Shaw Group Company

Founded 1889

Department of the Army
New England District, Corps of Engineers
696 Virginia Road
Concord, Massachusetts 01742-2751

September 11, 2002

J.O. No. 06851.12
NED-012-1810

Attention: Ms. Laureen Borochaner
Project Manager

USACE CONTRACT DACW33-97-D-0002
DELIVERY ORDER NO. 0012
IINTERIM REMOVAL ACTION
HOUSATONIC BOAT CLUB/SHORE ROAD SITE
STRATFORD, CT
FINAL REMOVAL ACTION REPORT

Dear Ms. Borochaner:

Attached are eight bound copies and the electronic PDF files on CD for Stone & Webster's Final Report for the Interim Action completed at Shore Road OU5 of the Raymark Superfund Site. The report is being submitted in accordance with the Statement of Work for the Interim Removal Action at Shore Road OU5 dated March 2, 2000.

The report has been revised to reflect final comments from USEPA, USACE and the State of Connecticut. Also included are the as-built drawings and construction photos for the removal action.

This submittal completes our activity on this Task Order. Please contact me at 617-589-8048 if you have any questions or comments relative to the report.

Sincerely,

Lee R. LePage, P.E.
Project Manager

Attachment

cc: R. Goff, USACE-NAE-Chicopee, MA

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INTERIM REMOVAL ACTION REPORT
NON-TIME CRITICAL REMOVAL ACTION

OPERABLE UNIT No. 5
RAYMARK – SHORE ROAD SITE
EPA CERCLIS ID NUMBER CT001186618

STRATFORD, CONNECTICUT

Prepared for

Department of the Army
New England District, Corps of Engineers
Concord, Massachusetts

Stone & Webster Project No. 06851.12

Contract Number DACW33-97-D-0002
Delivery Order No 0012

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1 INTRODUCTION

The Raymark - Shore Road Site (also referred to as Raymark Operable Unit Number Five, or OU5) is located in Stratford, Connecticut. The Site (Figure 1) is approximately 4 acres and includes a 1,350-foot section of Shore Road, the Housatonic Boat Club (HBC), and a small portion of the eastern slope of the Shakespeare Theater property. The Site includes the section of Shore Road from the curve on the south end, to just north of the end of the boat club parking area on the north end. The Site extends east to the Housatonic River and includes the riprap bank and a small peninsula of land extending south from the boat club parking area.

The Site is primarily used for commercial and recreational activities; however, several residences are located along the northern end of Shore Road. Both residential and commercial properties are located within or adjacent to the area of contamination.

The entire area of OU5 was once a salt meadow marsh that bordered the Housatonic River. HBC was constructed prior to 1940 on piers/piles adjacent to the channel of the Housatonic River. An elevated walkway was also constructed on piers to provide access to the boat club from the shore. This area received fill from the former Raymark Industries, Inc. (Raymark) facility as well as from other sources from approximately 1955 through 1970. After the area was filled, the elevated walkway was no longer required to access the boat club. Salt meadow marshes adjacent to OU5 on the north and south are portions of the original marsh that were not filled.

The former Raymark manufacturing facility, where the fill material originated, was located at 75 East Main Street in Stratford, Connecticut. From 1919 until September 1989, Raymark manufactured automotive and heavy brake friction components. Manufacturing wastes containing asbestos, lead, copper, polychlorinated biphenyl's (PCBs), dioxins, and other contaminants were routinely used to fill low-lying areas at the Raymark facility to create additional space for the facility's expansion. It was also common practice for the company to give away its excess manufacturing wastes for use as fill within the town of Stratford. The Site (OU5) is one of the areas that received this waste.

In 1993 and 1994, preliminary evaluations of surface and subsurface soils within OU5 were conducted by the United States Environmental Protection Agency (USEPA) and the Connecticut Department of Environmental Protection (CTDEP). Based on the results of those sampling events and due to threats to potential human health and the environment posed by on-site hazardous substances, CTDEP performed an interim removal action consisting of capping the area with a geotextile and covering with 6 inches of wood chips. This temporary capping was completed in 1994.

In 1995, USEPA listed the Site on the National Priorities List (NPL). In January 1999, the Town of Stratford requested that the USEPA inspect the interim cap as portions of the geotextile were reportedly exposed. The USEPA inspected the area and found the wood chips to be missing in several locations and the temporary geotextile cap to be failing due to weather and general use of the area.

On January 22, 1999, USEPA approved the initiation of an Engineering Evaluation/Cost Analysis (EE/CA) to assess various options for controlling and containing the source of contamination within OU5. In March 1999, USEPA performed an additional soil investigation to better characterize the nature and extent of contamination within the area. Based upon the results of this most recent investigation, hazardous substances were found at or very near the surface, including directly beneath the failing asphalt surface of Shore Road.

Various alternatives were identified in the Draft Final EE/CA prepared by TetraTech NUS Inc. in June 1999 and in a subsequent technical addendum in July 1999. An Action Memorandum (Action Memo) for remediation was issued on September 23, 1999, which outlined an approach that included limited excavation, backfilling on site and temporary storage of excess soil at a location within the Town of Stratford.

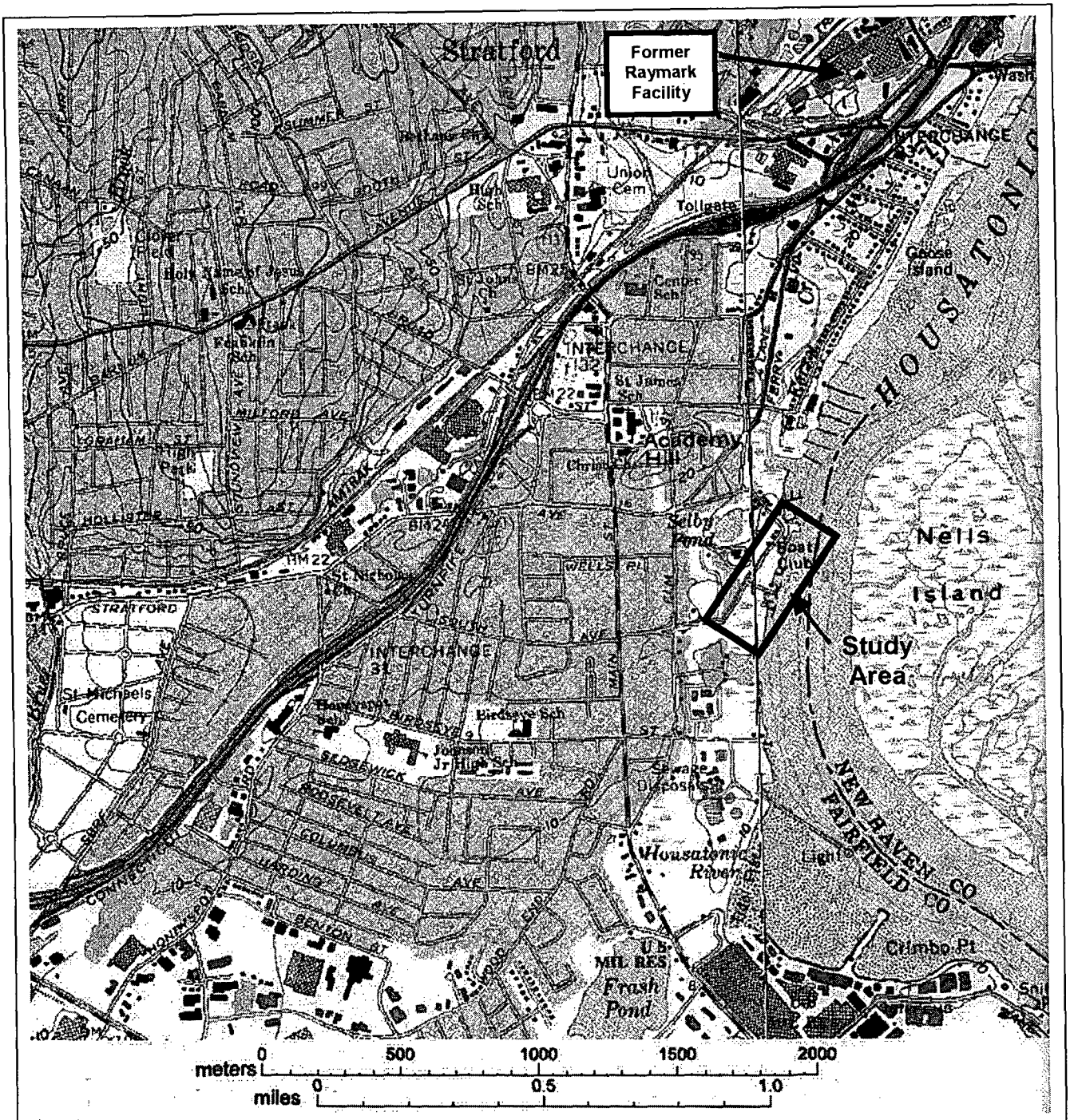


Figure 1
Site Location / Study Area

2 OPERABLE UNIT BACKGROUND

2.1 Background

Based on public comments to the EE/CA and the Action Memo, the USEPA deferred the implementation of a permanent remedy for OU5 (Shore Road) until additional alternatives are evaluated for all of the remaining Raymark Operable Units (OUs) in Stratford. A final remedy for Shore Road will be selected by USEPA in a Record of Decision (ROD), likely to be implemented in 3 to 5 years.

In the interim, a Non-Time Critical Removal Action (NTCRA) was approved by USEPA to reduce direct human contact with contaminants in the soil-waste/fill materials. This action was required due to the deteriorating condition of the existing temporary cap and cover implemented by CTDEP in 1994.

The overall objective of the interim action is summarized as follows:

- Reduce direct contact pathways with the contaminants buried at the HBC and Shore Road.
- Minimize the need for future excavation and associated hazardous material exposure by upgrading the waterfront revetment, the underground water, sewer and electric utilities and the Boat Shed foundation.
- Improve site drainage for Shore Road and the HBC by directing surface runoff towards the river.

The guidance for implementation of the interim action is as follows:

- Raymark wastes will not be transported off-site.
- Excavated waste soil will be consolidated within the footprint of the site using cement to achieve a stable base for the bituminous concrete paving.
- The specified limit of excavation is mean high water level, i.e., groundwater elevation.
- Confirmatory sampling is not required.
- The interim action shall be implemented in a manner which minimizes interference with HBC's schedule for the year 2000 boating season.

2.2 Nature and Extent of Contamination

The lateral boundary of the soil-waste/fill at OU5 was delineated as part of the EE/CA using historical aerial photographs of the area and observations of contaminant presence recorded during soil boring investigations. The vertical depth of soil-waste/fill was estimated using data from the subsurface investigation. Based on the field data, it was estimated that the surface area of OU5 is 170,800 square feet with an average depth of fill of 8 feet. Groundwater was encountered at an average depth of 5.5 feet. The investigation evaluated surface (0-2 feet) and subsurface (2-4 feet) soil conditions. The delineation of the extent of contamination in the soil was based on the results of soil boring investigations that evaluated concentrations of lead, asbestos, PCBs, and dioxins. The extent of contamination is shown on Figure 2.

A summary of findings related to these constituents is as follows:

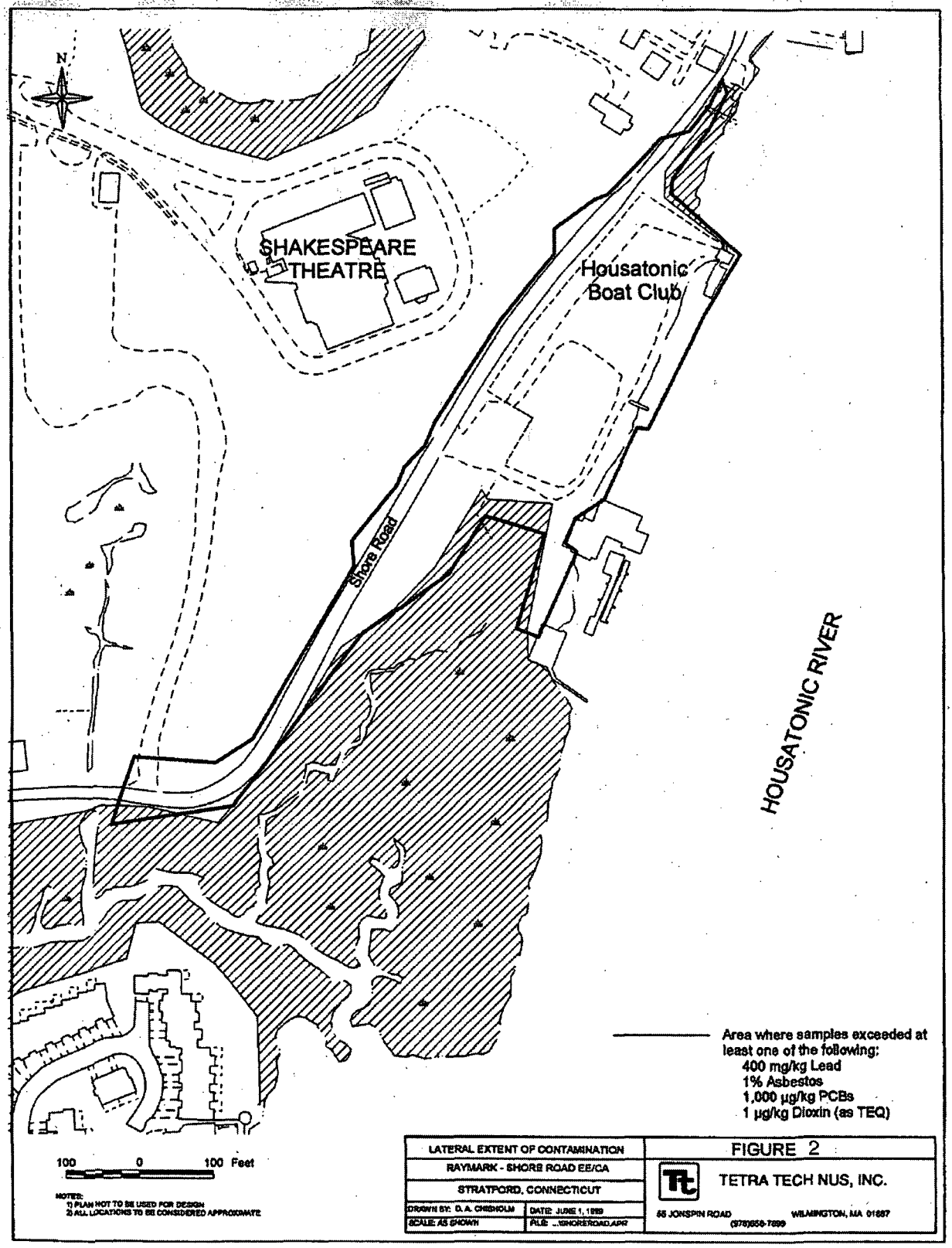
Lead: Elevated concentrations of lead were detected in both the surface and subsurface soils. Numerous samples taken from both 0 to 2 feet and 2 to 4 feet indicated lead concentrations above 10,000 ppm and many samples within the parking lot indicated lead concentrations from 400 – 10,000 ppm and as high as 54,000 ppm. Concentrations were typically comparable in both soil layers, however, lead was more laterally dispersed in the surface soils. The highest concentrations were found in the parking lot of HBC and along

the shoreline of the Housatonic River. Lead concentrations were actually used to define the perimeter of the contaminated area as elevated concentrations of asbestos, PCBs, and dioxins were all found within the area of lead contamination.

Asbestos: High concentrations of asbestos were detected in both the surface and subsurface soil layers. The distribution and magnitude of asbestos within the two soil layers were comparable, encompassing the HBC parking area and Shore Road. The majority of the samples were between 1 and 50% asbestos with peak concentrations as high as 85%. The highest concentrations were found on Shore Road near the entrance to the Boat Club parking lot and along the shoreline between the boat ramp and the boathouse.

PCBs: Elevated concentrations of PCBs were scattered throughout OU5. A few soil samples from both, the surface and subsurface exceeded 10 ppm with the majority between 1 – 10 ppm. Concentrations were comparable between the two soil layers, but somewhat higher in the surface soils, especially along Shore Road. Concentrations as high as 197 ppm were detected

Dioxins: Dioxins were detected in both surface and subsurface soils at comparable levels, but at different locations. Dioxins in surface soils were found along Shore Road. Dioxins in subsurface soils were found in the parking lot area of HBC and along the shoreline. Concentrations ranged between 0.001 – 12 μg/kg dioxin toxicity equivalents (TEQ) with the majority between 0.6 and 6 μg/kg. All locations, both surface and subsurface, are within the area defined by high lead concentrations.


N
SHAKESPEARE THEATRE
Housatonic Boat Club
Shore Road
HOUSATONIC RIVER
Area where samples exceeded at least one of the following:
400 mg/kg Lead
1% Asbestos
1,000 µg/kg PCBs
1 µg/kg Dioxin (as TEQ)
100 0 100 Feet
NOTES:
1) PLAN NOT TO BE USED FOR DESIGN
2) ALL LOCATIONS TO BE CONSIDERED APPROXIMATE
LATERAL EXTENT OF CONTAMINATION
RAYMARK - SHORE ROAD EE/CA
STRATFORD, CONNECTICUT
DRAWN BY: D. A. CHISHOLM
DATE: JUNE 1, 1999
SCALE: AS SHOWN
PLE: ...\SHOREROAD.APR
FIGURE 2
TETRA TECH NUS, INC.
55 JONSPIN ROAD WILMINGTON, MA 01887
(978)658-7899

2.3 Description of Work Areas

The following work areas were identified during the January 7, 2000 site inspection and planning session with representatives from the Town of Stratford, CTDEP, USEPA, USACE, HBC, and Stone & Webster. These areas are identified on Figure 3 and described below. Exposed Raymark waste was easily observed in several of the referenced areas and in other areas the geotextile fabric was exposed, implying that Raymark waste could be near the surface. Results of this inspection formed the basis for the design prepared by USACE:

Area A

Area A consists of a portion of land between the western curb of Shore Road and the top of the bank on the Shakespeare Theatre property. There were several locations along the curb where the edge of the geotextile could be easily lifted up, exposing potentially contaminated soil. Areas of heavy foot traffic on the slope needed to be reworked.

Area B

Area B consists of a strip of land between the eastern edge of Shore Road and the toe of the slope of the wetlands bordering the Housatonic River. The southern boundary is the culvert under Shore Road and the northern boundary is the southern fence of the boat club. The northwest boundary includes the paved/gravel entrance from Shore Road to the electric gate, but not the grassed triangular area immediately to the west of the entranceway.

Some portions of the side slope had no cover and were only protected by the existence of the phragmites. The contaminated soils on this slope were subject to erosion due to wave and tidal action. The interface between paved and unpaved areas had exposed geotextile.

Area C

Area C begins with the grassed triangular area bounded by Shore Road, the entrance road to the boat club, and the southern fence of the boat club and includes a narrow strip of land between the eastern edge of Shore Road and HBC fence line which parallels Shore Road. The depth of cover over the waste was unknown and in at least one location exposed geotextile was observed.

Area D

Area D consists of the partial riprap area(s) along the Housatonic River. The western edge begins at the top of slope of HBC parking area. The northern boundary is the dry-sail pier/hoist area, and the southern edge is the area immediately south of the Youth Programs Building, including the walkway and the riprap on either side of the walkway but not including the adjacent natural tidal area. Area D was subdivided into three unique areas:

- Area D1 consists of the partial riprap area starting from the timber bulkhead at the dry sail pier/hoist to the boat ramp.
- Area D2 consists of the partial riprap area between the boat ramp and the boat club dock. The rip rap which was previously installed in Area D2 to isolate the waste from direct contact was in good condition during the interim actions, therefore no additional work was performed during the Non Time Critical Removal Action.
- Area D3 consists of the causeway including the concrete walkway and riprap on either side of the causeway leading to the Youth Programs Building.

Some areas along the shore were partially rip-rapped; however, exposed friction parts and Raymark waste were observed between the rip-rap. The south section of Area D1 was more heavily rip-rapped and less Raymark waste was exposed, however, the timber cribbing at the dry-sail pier was partially collapsed. Raymark waste was observed at the southern edge of the walkway in Area D3.

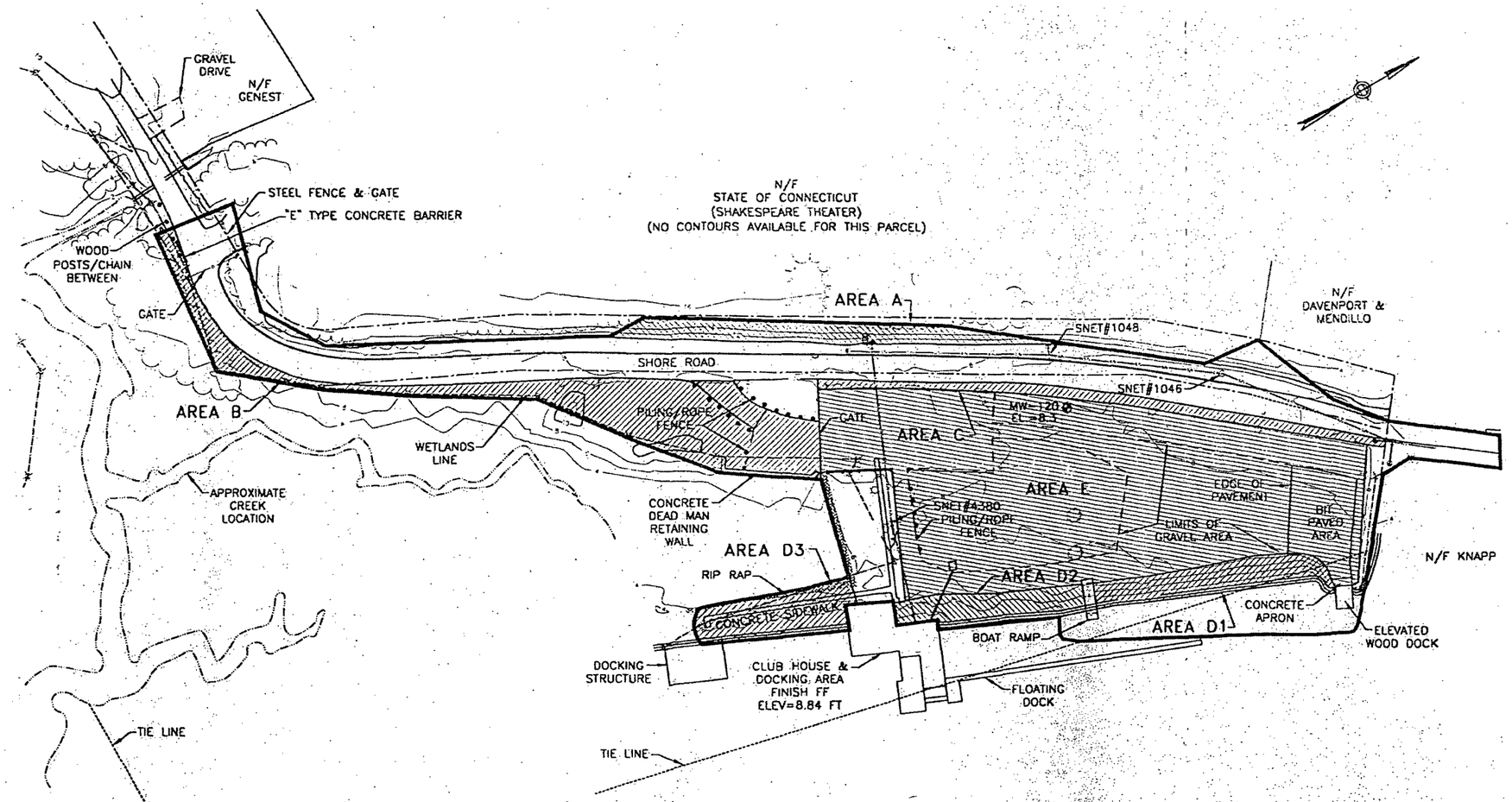
Area E

Area E is defined as the area within the existing boat club fence, not including the riprap area(s) to the east of the large concrete blocks at the top slope along the Housatonic River, or the rip-rapped area immediately south of the boat club (i.e., the built-up walkway leading to the youth program building).

At several locations within this area there was evidence of deterioration of the interim cap installed by DEP such as the area immediately south of the dry-sail area (northern paved area). The majority of the area was however still covered by CTDEP's interim cap.

Shore Road

This area consists of the asphalt roadway commencing on the south at the sanitary sewer manhole and on the north at HBC rip-rap revetment. Numerous potholes and cracks existed through the wear course. In some instances, previous patching efforts were also failing.



NOTES:

1. ELEVATIONS BASED ON U.S.C. & G.S. BENCHMARK DISK STAMPED Y 33 1965 LOCATED IN THE SOUTH CONCRETE HEADWALL OVER FERRY CREEK AT BROAD STREET. ELEVATION = 9.058 FEET NAD 29.
2. PHYSICAL AND TOPOGRAPHICAL FEATURES AS SHOWN HEREON ARE AS SURVEYED BY DIVERSIFIED TECHNOLOGIES CORPORATION SEPTEMBER 29, 1994 – OCTOBER 20, 1994. LOCATION OF WETLANDS AND GROUND PENETRATING RADAR (GPR) POINTS ARE SHOWN AS SUPPLIED BY TTNUS AND WERE NOT RELOCATED IN THE FIELD.
3. GRID, COORDINATES AND NORTH ARROW BASED ON CONNECTICUT GRID COORDINATES.
4. ALL LOCATIONS ARE CONSIDERED APPROXIMATE.
5. PLAN IS NOT TO BE USED FOR DESIGN.
6. ORIGINAL BASE MAP CREATED BY TETRA TECH NUS, INC..

LEGEND:

- PROPERTY LINE
- CHAIN LINK FENCE LINE
- GUIDE RAIL
- EDGE OF CREEK OR WATER
- UTILITY POLE
- LIGHT POLE
- GUY WIRE
- SIGN
- WETLANDS FLAG
- MONITOR WELL
- DECIDUOUS TREE
- POST
- TREELINE
- EXISTING CONTOUR
- RETAINING WALL
- WORK AREA

0 100 200 FEET
1" = 100'-0"

RAYMARK – SHORE ROAD
STRATFORD, CONNECTICUT

PROJECT NUMBER: 06851

FIGURE 3

DELINEATION OF WORK AREAS

STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES
BOSTON, MASSACHUSETTS

10-March-2000

3 CONSTRUCTION ACTIVITIES

The objective of the Interim Removal Action, designed by USACE and implemented by Stone & Webster, was to minimize the human health threats associated with direct contact and exposure with the contaminants in the soil-waste/fill materials. The scope of work as shown on the as-built drawings in Appendix D consisted of the following major work elements:

- Mobilization, site preparation, and demolition
- Excavation of contaminated soils and installation of a new stone rip-rap barrier (revetment) along the unprotected southern waterfront area of HBC identified as Area B.
- Repair of the existing stone riprap revetment along the northern waterfront area of HBC and the causeway to the youth sailing program area identified as Areas D1 and D3.
- Installation of new potable water, sanitary sewer, and electrical services from HBC to the local utility systems to address direct exposure health risks related to future maintenance of the existing septic system, existing underground water, and electric utility systems.
- Replacement of the deteriorated timber bulkhead at the boat hoist dock with a coated sheet pile structure.
- Excavation of contaminated soils and installation of a foundation for a future boat shed building.
- Placement of excavated soil including in-situ cement stabilization, regrading and compaction within the footprint of the HBC property and Shore Road to improve site drainage and achieve a suitable base for new asphalt pavement.
- Regrading and capping of all driving surfaces with asphalt paving in Area E and Area C.
- Regrading and asphalt resurfacing of the entire length of Shore Road.
- Restoration of sections of the western shoulder and embankment cover along Shore Road and the Shakespeare Festival Theatre including installation of a new sidewalk identified as Area A.
- Final restoration including fencing, lighting, and landscaping including seeding, sod placement and plantings in all other non-driving areas.

Construction activities associated with these work elements are summarized in Table 1 and further described below:

3.1 Mobilization, Site Preparation, and Demolition

Site preparation activities included the placement of temporary facilities and services that were required to support the Interim Removal Action. These activities included:

- Mobilization and set up of temporary office trailers and sanitary facilities.
- Layout Survey to delineate the wetland limits for revetment construction.
- Clearing and Grubbing - Vegetation was cleared from the revetment and support areas.
- Fence Installation/Security - Additional fencing and signage was provided to limit access to the property.
- Dig Safe - Existing gas, water, electrical, telephone, storm drain, and sanitary sewer utilities were located. Temporary water, electric, and telephone services were established.
- The Establishment of Work Zones - Exclusion, Contamination Reduction, and Support Zones for the project were established. Personal protective equipment and waste storage areas were mobilized.

Table 1
Work Completion Summary

Description of Work	Unit	Quantity
Remove concrete block retaining wall Area B	LF	270
Install concrete block retaining wall Area B	LF	264
New concrete blocks delivered	Each	74
Realign concrete blocks Area E	LF	165
Place concrete blocks Area D1	LF	440
Remove concrete block Areas B-D3	LF	114
Place concrete blocks Areas B-D3	LF	229
Haul & place clearing & grubbing spoils	CY	210
Excavate, haul and stabilize contaminated soil	CY	2463
Furnish and install clean fill	CY	2072
Furnish and install select granular fill	CY	204
Furnish and install geotextile	SF	126000
Furnish and install erosion control matting	SF	17320
Furnish and install gravel-bedding	CY	701
Furnish and install Class I Stone Areas B & D3	CY	580
Class I Stone chinking Area D1	SF	4420
Class I Stone chinking Areas B-D3	SF	850
Furnish and install Class II Stone	CY	96
Class II Stone chinking Areas B-D3	SF	960
Furnish and install topsoil	CY	793
Furnish and install seed & fertilizer	SF	52765
Furnish and install sod	SF	9721
Furnish and install 10-inch gravel base	CY	4819
Additional utility trenching	LF	900
Furnish and install sanitary sewer line	LF	1988
Furnish and install potable water line	LF	1050
Furnish and install sanitary lift station	Each	1
Furnish and install buried PVC utility conduits	LF	658
Boat Shed Foundation	SF	1344
Sheetpile bulkhead at boat hoist dock	LF	90
Concrete sidewalk at boat club	LF	400
Paved sidewalk at Shore Road	LF	1300
4-inch asphalt base course	SF	102077
2-inch asphalt top course	SF	108643
Asphalt Tack Coat	SF	108643
Install silt fence and haybales	LF	1830
Install temporary construction fence	LF	225
Install & remove temporary security fencing	LF	1315
Install new perimeter fence & gates w/barbed wire	LF	720
Install new guardrail	LF	80

Site demolition activities consisted of the following work:

- Removal and disposal of miscellaneous debris located within HBC property including old chains, anchors, wood debris, boat cradles, trash, and the existing perimeter chain link fence, which was placed into non-hazardous roll-off containers.
- The existing septic tank was abandoned in place after it was pumped dry and backfilled with clean fill. The associated piping was isolated, dismantled, and back-filled with clean material.
- The concrete block retaining wall located along the Shore Road revetment was removed and the blocks were cleaned and stockpiled for reuse.

3.2 Revetment Construction in Area B

Excavation of waste soils along the eastern edge of Shore Road and the causeway revetment occurred during the low tide cycle. A licensed Connecticut surveyor established the limits of the excavations. Survey stakes were placed at the perimeter of the excavation and were reviewed and approved by USACE prior to excavation. The surface was cleared and grubbed. Erosion and sediment control in the form of silt fence was placed at the toe of the excavation. Access and material control was delineated and configured to allow loading of the transport vehicle directly from the excavator. Controlled loading minimized the vehicle cleaning effort prior to transport to the stockpile area. Approximately 1395 cubic yards (CY) of Raymark waste was excavated from Area B and stockpiled in the parking area on 10 mil. poly. The stockpile was covered at the end of each day with 10 mil. poly.

A tracked excavator with a smooth edged grading bucket performed the excavation cut. The on-site QC Engineer visually approved the excavation and collected documentation samples prior to placement of the geotextile material. The specified limit of excavation for construction of the revetment was mean high water level, i.e., groundwater elevation. Three (3) soil samples were obtained at the bottom of the excavation on 200-foot intervals for purposes of documenting conditions at the extent of the excavation. Excavation below groundwater was beyond the scope of this interim removal action. Results of these samples are included in Section 6, Table 2.

Placement of clean fill as backfill commenced immediately after the geotextile was installed to effectively utilize the low tide cycle. The clean backfill material was supplied and staged near the excavation and placed with a front-end loader. The inclined surface was compacted to 90% of the dry density with walk behind plate compactors. Soils placed on horizontal surfaces were compacted by a vibratory drum compactor. A soil-testing technician performed density tests once every 10,000 square feet (SF) and at least once per lift prior to placement of the 304 CY of gravel bedding and 274 CY of Class I stone. The Class I stone was stockpiled and supplied to the back-filled face of the excavation by a loader. The excavator distributed and set the stone in place. Workers, hand placed "chinked" the stone as needed to finish the revetment. Approximately 1009 CY of clean fill material, supplied by Stratford Rock, LLC, located on Watson Blvd. in Stratford, CT, was used in the Area B revetment.

3.3 Construction in Area D1 and D3

Area D1 consists of the partial riprap revetment area along the river starting from the dry sail pier/hoist to the boat ramp. In this area, approximately 4420 SF of the existing riprap was repaired by placing additional Class I stone to cover exposed soils and provide a uniform well-graded cover of stone. The Class I stone was stockpiled and supplied to the face of the revetment with an excavator. The excavator distributed the stone and workers hand placed "chinked" the stone as needed.

The deteriorated timber cribbing for the dry sail pier was repaired by installing a new sheetpile bulkhead as shown on Stone & Webster drawing 06851-DY-1A-2. A total of 22 (AZ-18) piles were driven to an average depth of 33 feet below the mud line. The void between the timber cribbing and the interior face of new

bulkhead structure was backfilled with approximately 80 CY of clean gravel bedding. The adjacent stone protection was repositioned to blend into the exterior face of the new bulkhead.

Area D3 consists of the causeway, concrete walkway and riprap on either side of the causeway leading to the Youth Programs Building. While removing contaminated material in Area D3, a large concrete obstruction was encountered during the initial excavation of the southern end of the causeway. The remaining area was investigated by excavating several test pits. The findings of the investigation indicated that the causeway area was mainly comprised of a solid concrete slag type of material that prevented further excavation. The USACE directed Stone & Webster to reestablish the southern end of causeway to original grade by placing geotextile, clean fill, and riprap. The remaining length of causeway received 170 linear feet (LF) of new 5-foot wide concrete sidewalk. Gravel bedding material was placed on both sides of the sidewalk and the eastern side riprap was chinked with Class II stone protection. Three PVC conduits were placed below the gravel bedding for future installation of electrical, sewer, and water services to the Youths Program Building.

3.4 Underground Utility Construction

Utility construction work consisted of the following:

- The installation of redundant 1 ½-inch PVC force main sanitary sewer lines from the pump station to the municipal sanitary sewer including installation of a new duplex grinder pump lift station. Pressure and hydrostatic tests were conducted on the system.
- Installation of a 2-inch HDPE water line including a back-flow preventer and water meter from the boat club building to the municipal water main. The water line was installed in a rigid PVC containment conduit. Pressure and hydrostatic tests were conducted on the lines.
- Installation of PVC conduits (2-inch, 4-inch, and 6-inch) for future installation of an underground water line and electrical distribution services to remote locations such as the dry sail pier, the Youth Programs Building, the boat shed building, and various hose connection locations. Size and location of conduits are shown on USACE Drawing E-1.
- Relocation and replacement of three (3) electric utility poles along Shore Road in clean soil filled casings.

3.5 Cement Stabilization of Waste Soil Beneath Paved Areas

The waste soil that was placed beneath pavement was stabilized with Portland cement and compacted as per USACE Specification Section 02245. The objective of cement stabilization was to achieve a stable base for the bituminous paving. Approximately 2463 CY of waste soil was spread uniformly with a dozer to a maximum loose lift thickness of 12 inches in the designated areas. No cement was required in soil placed beneath vegetated areas.

Portland cement was placed in unopened bags at 5-foot spacing to achieve the specified soil cement content of 3.5%. Mixing began as soon as practical after the cement bags were placed. The mixing was performed in-situ utilizing a HAMM RACO 250 soil stabilizer which simultaneously opened the bags and mixed the cement with the soil. Water was available during the mixing operation in the event that dust control was required. The moisture content of the soil was sufficient for dust control during the mixing operation.

Compaction began within 3 hours after the waste soil was amended with cement. The 12-inch loose lift was uniformly compacted with a minimum of four passes by a vibratory drum compactor. Field density testing of the waste soil was not required. Selected areas of the site required extensive rework consisting of supplemental cement and blending with gravel in order to achieve a sufficiently compacted base for asphalt paving. Variable moisture and organic content of the waste soil was a factor contributing to the rework.

3.6 Construction in Area E and Area C

Material removed from the excavations for the Areas B and D3 revetments, the boat shed foundation described below, and utility trenching was placed in this area, stabilized and compacted as described above. The area was capped with bituminous concrete and a new fence was installed. Approximately 2463 CY of Raymark waste was placed, stabilized, and compacted in Areas E and C.

Excluding grassed areas, all of Areas E and C were paved. The areas were regraded with the stabilized excavated material and sloped to improve site drainage. A minimum of 10 inches of graded aggregate base material was placed and compacted over the stabilized waste soil in paved areas. Additional graded aggregate base was selectively placed to achieve the desired final site drainage pattern resulting in a total quantity of graded aggregate base of 4819 CY. A water truck was required for dust control during final grading. The driving areas were then paved with approximately 83,000 SF of 4-inch base course and a 2-inch wearing course of bituminous concrete.

All non-driving areas within Area E were either seeded (approximately 35,445 SF) or received sod (approximately 9721 SF), and landscape plantings. In these areas a minimum of 6 inches of clean fill and 6 inches of topsoil were placed above the waste. Approximately 200 LF of 5-foot wide concrete sidewalk was installed adjacent to the boat club building entrance. A 4-foot wide strip of gravel bedding was placed in Area C parallel to Shore Road and ivy plantings were placed along the concrete block retaining wall.

Approximately 720 LF of new chain link security fence was installed in the location of the original fence. The automatic entrance gate and opener were re-installed and a safety loop detector was added.

A reinforced concrete foundation (28 feet x 48 feet) for the future boat shed building was also constructed in Area E. The foundation was constructed in a clean footprint by excavating approximately 726 CY of waste soil down to groundwater. The excavation and foundation were then backfilled and compacted using 820 CY of clean fill to achieve the specified final foundation grade. A building inspector from the Town of Stratford inspected the excavation and formwork prior to placement of concrete.

3.7 Shore Road Construction

Actions on the southern end of Shore Road included curve realignment, shoulder repairs, selected subgrade repair and approximately 6566 SF of new 2-inch bituminous concrete wearing course on the entire southern section from the sanitary sewer manhole to approximately Station Location 7+80. The remaining northern section of Shore Road was completely regraded with stabilized excavated material along all of Area C and all of Area E. This area also received a minimum of 10 inches of graded aggregate base material and was paved with approximately 19,200 SF of 4-inch base course and a 2-inch wearing course of bituminous concrete. A bituminous concrete curb was installed on the entire western edge of the road. New traffic signs were installed.

3.8 Construction in Area A

Area A consists of a portion of land between the western curb of Shore Road and the top of the bank on the Shakespeare Theatre property. A new 6-foot wide asphalt sidewalk was placed between the western curb of Shore Road and the toe of slope for the Shakespeare Theatre property. Clean fill and stabilized soil were aced and graded above the old geotextile liner on the sideslope to achieve the desired transition to the new sidewalk. New geotextile material was then placed above the clean fill material. New topsoil was placed in a 6- to 8-inch lift over the geotextile, the area was hydroseeded and 17,320 SF of erosion control mat was installed.

Three existing electric utility poles (SNET #1046, #1048 and #1050) were replaced and relocated in alignment with the new sidewalk. The new poles were installed in clean soil filled casings.

3.9 Site Restoration and Demobilization

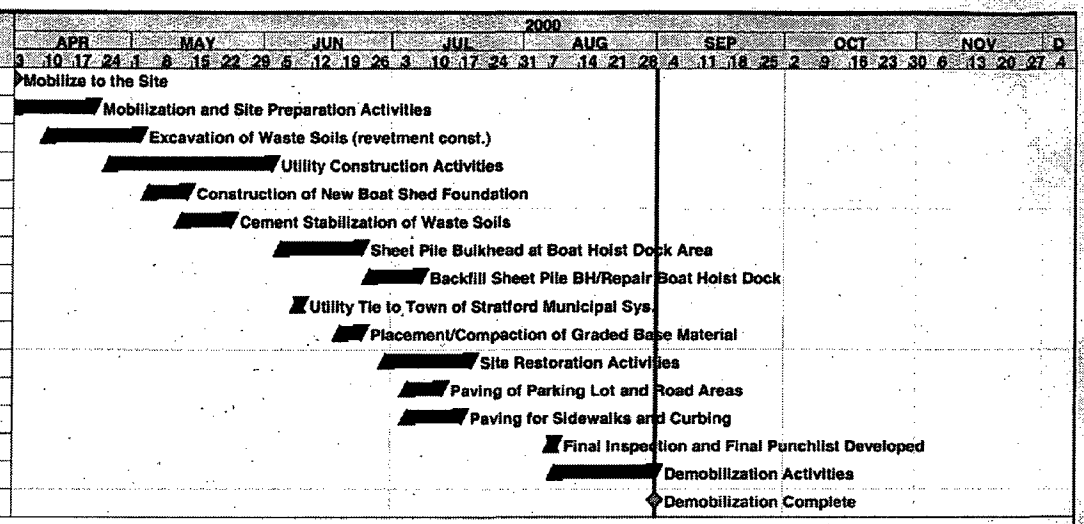
Following the completion of construction activities, the Site was restored as shown on the Site Plan and the project facilities/services removed. These activities included:

- Parking lot striping.
- Application of 52,765 SF of seed and fertilizer.
- Installation of 9721 SF of sod in select areas.
- Landscaping
- Installation of the flagpole.
- Replacement of 720 LF of chain link fence and 80 LF of guard rail.
- Replanting of three (3) trees.
- Removal of 1320 LF of temporary security fence.
- Removal Site office facilities.
- Removal of erosion and sedimentation controls.
- Removal of all Site utilities installed for the project.
- Demobilize.

4 CHRONOLOGY OF EVENTS

Figure 4 includes a chronology of significant project events.

Activity Description	Early Start	Early Finish
Mobilize to the Site	03APR00A	
Mobilization and Site Preparation Activities	03APR00A	21APR00A
Excavation of Waste Soils (revetment const.)	11APR00A	02MAY00A
Utility Construction Activities	26APR00A	02JUN00A
Construction of New Boat Shed Foundation	05MAY00A	13MAY00A
Cement Stabilization of Waste Soils	13MAY00A	23MAY00A
Sheet Pile Bulkhead at Boat Hoist Dock Area	05JUN00A	23JUN00A
Backfill Sheet Pile BH/Repair Boat Hoist Dock	26JUN00A	07JUL00A
Utility Tie to Town of Stratford Municipal Sys.	09JUN00A	09JUN00A
Placement/Compaction of Graded Base Material	19JUN00A	23JUN00A
Site Restoration Activities	30JUN00A	19JUL00A
Paving of Parking Lot and Road Areas	05JUL00A	12JUL00A
Paving for Sidewalks and Curbing	05JUL00A	17JUL00A
Final Inspection and Final Punchlist Developed	08AUG00A	08AUG00A
Demobilization Activities	09AUG00A	31AUG00A
Demobilization Complete		31AUG00A



Project Start 03APR00
Project Finish 31AUG00
Data Date 01SEP00
Run Date 27FEB01
© Primavera Systems, Inc.

Early Bar
Float Bar
Progress Bar
Critical Activity

SHOR

Sheet 1 of 1

Stone & Webster
Raymark - Shore Road Site
Chronology of Events

Figure 4

5 WASTE MANAGEMENT

5.1 On-Site Disposal

Approximately 2463 CY of waste soil was excavated during the interim action. The soil was placed, stabilized, and compacted on-site in accordance with the specifications and Project Drawings developed by the USACE.

5.2 Off-Site Disposal

Approximately 50 CY of debris consisting of poly, geotextile, and PPE was classified as non-hazardous asbestos waste and was transported off-site in two doubled-lined rolloffs to Connecticut Valley Sanitary Waste Disposal, a Waste Management Facility, located in Chicopee, MA. Shipping records are included in Appendix A.

Approximately 440 CY of common wood debris and other non-hazardous materials from demolition and aboveground clearing and grubbing was transported off site to a State of Connecticut licensed transfer station, Stratford Baling Corporation in Stratford, CT. The waste debris was transferred to Keystone Sanitary Landfill in Dunmore, PA, as the final disposal destination.

6 SAMPLING AND ANALYSIS

Sampling and analysis were performed in accordance with the Sampling and Analysis Plan (SAP) and the Ambient Air Monitoring Plan (AMP). Sampling efforts included:

- Documentation soil sampling
- Ambient air monitoring
- Industrial hygiene sampling

6.1 Documentation Sampling

Documentation sampling was conducted during the excavation of Area B revetment. Samples were collected at the bottom of the excavation every 200 feet and analyzed for lead, PCBs and asbestos. A sample was also collected from the bottom of the excavation of the new Boat Shed foundation that is located in Area E. These samples were collected to document chemical concentrations at the extent of the excavation. Analytical results from these samples were not required prior to backfilling. Table 2 gives the Summary of Documentation Samples.

Refer to Appendix B for the Geotechnical Testing Data. Two soil borings were advanced at the boat hoist dock to obtain geotechnical information for design and construction of the new sheet pile bulkhead structure. Both borings revealed fine sand and silt to a depth of 40 feet.

Table 2
Summary of Documentation Samples

Media	Soil	Soil	Soil	Soil
Sample ID	RSR-B-041200-S001	RSR-B-041900-S002	RSR-B-042400-S003	RSR-B5-050400-S004
Location	Sta. 9+00 200' from entrance gate	Sta. 7+00 390' from entrance gate	Sta. 5+30 600' from entrance gate	Boat Shed Boat Shed Excavation
Lab ID	0004226-01A,B	0004226-02A,B	0005052-01A,B	0005052-02A,B
Date	04/12/00	04/19/00	04/24/00	05/04/00
Metals (Method 6010B) mg/kg				
Lead	20000	20000	370	74
PCBs (Method 8082) µg/kg				
Aroclor 1016	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	570
Aroclor 1254	ND	ND	ND	340
Aroclor 1260	ND	ND	ND	ND
Aroclor 1262	320000	180000	1200	310
Aroclor 1268	280000	170000	1300	180
Lab ID	72501	72502	72503	72504
Asbestos (EPA Protocol for Soil) %				
Asbestos	0.14% Chrysotile	4.58% Chrysotile	0.10% Chrysotile	<1% Chrysotile

6.2 Ambient (Perimeter) Air Monitoring

During invasive remediation activities, ambient air was monitored for airborne dust, asbestos, lead and PCBs at the perimeter of the Site to verify that concentrations of these contaminants did not exceed established Exposure Limits. Throughout the Interim Removal Action the perimeter monitoring yielded results for lead and asbestos which were below the established Exposure Limits. Exceedance for perimeter dust at SP1 on 5/1/00 and 5/2/00 and SP4 and SP6 on 5/8/00 and 5/9/00, however no exceedance for asbestos or lead on

these dates. These higher dust levels are attributed to clean fill material delivered in close proximity to the sampling location. Several exceedances for perimeter dust at SP4 during the month of June are attributed to placement of over 4000 CY of clean graded base material during dry weather conditions. No invasive activities were performed during this time period and all contaminated material had been stabilized.

The four potential receptors of concern entailed:

- the condominium development to the South of the Site (sampling point 1);
- the Shakespeare Festival Theatre to the West of the Site (sampling point 3);
- the residence immediately to the North of the Site (sampling point 4);
- the boat club main dock area to the East of the Site (sampling point 6)

The air sampling cycles are given in Table 3.

Table 3
Air Sampling Cycles

	3 Days Prior to Start	1st Week	2nd - 4th Week	5th Week - End	Action Levels
Dust (perimeter)	Daily	Daily	Daily	Daily	0.10 mg/m^3
Asbestos (perimeter)	Daily	Daily	Weekly	Weekly	0.01 structures/cc
Lead (perimeter)	Daily	Twice	Weekly	Monthly	0.003 mg/m^3
PCBs (perimeter)	Daily	Once	Weekly	Monthly	0.00001 mg/m^3

The Air Monitoring Results are given in Appendix C.

6.3 Personal Air Monitoring

During invasive activities, remediation worker breathing-zones were monitored for airborne asbestos, lead, and PCBs at specific locations within the Site to verify that concentrations of these contaminants did not exceed established Action Levels. Action levels were derived from OSHA Personal Exposure Limits (PELs) and were protective of worker occupational health.

Personal air monitoring was performed on two workers conducting activities expected to potentially generate the highest exposures of dust, asbestos, lead, and PCBs. Throughout the Interim Removal Action the personal monitoring yielded results which were below the established Exposure Limits.

The Air Monitoring Results are given in Appendix C.

7 FINAL INSPECTION AND SAFETY

7.1 Inspections

The pre-final inspection was held on site July 17, 2000, in the presence of the USEPA represented by Rick Leighton, USACE represented by Ray Goff, Laureen Borochaner and Champak Shah, Stone & Webster represented by Lee LePage and Jeff Shea, Dave Ciroli from Franklin Environmental, Lee Henchman from the Housatonic Boat Club (HBC) and Elaine O'Keefe from the Town of Stratford. At that time a punchlist was developed and some new additional work items were added to the scope of the Interim Removal Action.

The final inspection was conducted on August 8, 2000. The representatives from USEPA, USACE, Town of Stratford, HBC, Franklin Environmental and Stone & Webster were again present as well as Connecticut representatives Margaret Welch and Ron Curran. Minor punchlist items were identified and were corrected in an appropriate timeframe.

7.2 Health and Safety

Work conducted as part of the Interim Removal Action conformed to the requirements of the Site Safety and Health Plan (SSHP) which was implemented by Stone & Webster's SSHO.

The Site was "secured" using signage, fencing, and warning tape (i.e., CAUTION, DANGER, etc.) as necessary to provide warning of Site hazards and to prevent unauthorized access to the Site and support areas.

All workers were required to use personal protective equipment (PPE), and industrial hygiene (personal air) sampling was performed to monitor and document the adequacy of the PPE and other safety measures. Ambient air monitoring was also performed at/around the Site perimeter.

The project's safety statistics are zero OSHA recordable incidents and no lost-time incidents. Total Site hours, for all project-related personnel were 9846. The safety statistics, on a monthly, annual (YTD) and project-to-date (PTD) basis, are given in Table 4:

Table 4
Site Safety Statistics

Month / Yr	Hours	Recordable Incidents			Lost Time Incidents		
		Month	YTD	PTD	Month	YTD	PTD
April 2000	2673	0.00	0.00	0.00	0.00	0.00	0.00
May 2000	3311	0.00	0.00	0.00	0.00	0.00	0.00
June 2000	1840	0.00	0.00	0.00	0.00	0.00	0.00
July 2000	1520	0.00	0.00	0.00	0.00	0.00	0.00
August 2000	502	0.00	0.00	0.00	0.00	0.00	0.00
Total	**9846**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

8 PERFORMANCE AND CONSTRUCTION QUALITY CONTROL

Work conducted as part of the Interim Removal Action conformed to the requirements of the Contractor Quality Control Plan (CQCP). Stone & Webster's QC Engineer was responsible for the implementation of the CQCP.

The USACE three-phase inspection approach to Contractor Chemical Quality Control (CCQC) was applied to work activities on site. The QC Engineer conducted preparatory inspection to review all pertinent sections of the documents that governed the work to be performed. Initial inspections were conducted on each definable feature of work to ensure the level of workmanship was acceptable and in accordance with the project specifications. Follow up inspections on work activities was conducted on a daily basis.

The overall objectives were achieved through the implementation of the interim NTCRA as follows:

Direct human contact and exposure with the wastes has been minimized by:

- Construction of a new permanent revetment in Area B and repair of the revetment in Area D.
- Asphalt paving of Shore Road and the parking lot with a minimum 10-inch granular base, 4-inch asphalt base, and 2-inch asphalt wearing surface.
- Installation of a 6-inch protective clean soil cover including a geotextile fabric layer and landscaping details in all non-driving areas.

The following actions will limit the need for future excavations to repair the underground utilities and will therefore minimize human exposure to the wastes:

- Redundant sanitary sewer lines were installed.
- The new water line was installed in a protective conduit.
- The electric service was installed in a protective conduit.
- An underground raceway system was installed to permit future installation of water hoses and electrical distribution cables.
- New utility poles were installed in clean fill material.

9 PUBLIC INVOLVEMENT / COMMUNITY ISSUES

Stone & Webster assisted the USACE, USEPA, and CTDEP in dealing with site activities related to the general public and the community surrounding the Site. All contact with the public and or local agencies (except Fire, Police, Ambulance, and Hospitals) was directed through the USACE and/or USEPA. At no time did Stone & Webster or any of its subcontractors provide information to the public regarding the status of the project without the direct involvement of the USACE.

10 SUMMARY OF PROJECT COSTS

The summary of project costs is given in Table 5.

Table 5
Project Cost Summary

WBS	Description	Cost
	Total Delivery Order 0011 - Initial Planning Efforts	$9,371
0101	Mobilization / Demobilization / Site Prep - S &W	$71,812
0102	Mobilization / Demobilization / Site Prep – Subcontractors	$223,872
0103	Work Plan Preparation	$35,344
0203	Air Monitoring Equipment & Sampling	$52,631
0301	Demolition	$37,378
0303	Earthwork	$54,508
0308	Utilities	$110,931
0602	Operation of Water Treatment System	$0
1504	Soil Stabilization Activities	$62,445
1590	Soil Treatment Evaluation	$13,163
1591	Preliminary Site Security	$20,767
1703	Advanced Procurement	$49,638
2001	Fill	$333,834
2003	Permanent Features	$642,997
2004	Revegetation	$29,883
2201	Initial Planning, Mgt. & HQS Activities	$66,554
2202	Field Non-Manual Labor	$146,398
2203	Home Office Project Management & Nobis Support	$151,204
	WBS Total	**$2,112,731**
	Fee	$170,568
	TOTAL	**$2,283,300**

11 REFERENCES

1. Tetra Tech NUS, Inc., 1999, "Draft Final Engineering Evaluation/Cost Analysis – Raymark – Shore Road, Stratford, CT," June 1999

2. Stone & Webster Engineering, 2000, "Draft Site Safety and Health Plan/Air Monitoring Plan – Raymark – Shore Road, Stratford, CT," March 2000.

3. Stone & Webster Engineering, 2000, "Draft Sampling and Analysis Plan – Raymark – Shore Road, Stratford, CT," March 2000.

4. Stone & Webster Engineering, 2000, "Contractor Quality Control Plan" – Raymark – Shore Road, Stratford, CT," March 2000.

5. USACE, Second Draft, "Construction Specifications" – Raymark – Shore Road, Stratford, CT," March 2000.

APPENDIX A

WASTE SHIPMENT RECORDS

102717

WASTE SHIPMENT RECORD #001

REPORT DATE

GENERATOR

1. Work site name and mailing address	Owner's Name	Owner's telephone no.
RAYMARK SUPERFUND SITE SHORE ROAD STRATFORD, CT 06615 O.U. # 5	US EPA REGION 1 US ARMY CORPS OF ENGINEERS	617-918-1342

2. Operator's name and address	Operator's telephone no.
FRANKLIN ENVIRONMENTAL SERVICES, INC. 185 INDUSTRIAL ROAD WRENTHAM, MA 02093	508-384-6151

3. Waste Disposal Site (WDS)	WDS telephone no. 413-594-4172
Name CT VALLEY SANITARY LANDFILL Mailing Address 161 NEW LUMBAND ROAD CHICOPEE, MA Physical Site Location SAME	Additional Information

4. Name and address of responsible agency

US EPA REGION 1/US ARMY CORPS OF ENGINEERS, N.E. DISTRICT
WESTERN PROJECT OFFICE
570 PATRIOT AVENUE, BOX 70, CHICOPEE, MA 01022-1634

5. Description of materials	6. Containers No. Type	7. Total quantity m³ (yd³)
RQ, ASBESTOS, 9, NA 2212, 111 RQ= 1 LB (ONE POUND)	ROLL OFF	25 YARDS

8. Special handling instructions and additional information

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Printed/typed name & title	Signature	Month Day Year
Robert Tew Proj Manager	[signature]	09 12 2000

TRANSPORTER

10. Transporter 1 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month Day Year
FRANKLIN ENVIRONMENTAL	[signature]	9 11 00
Address and telephone no. 185 INDUSTRIAL RD WRENTHAM MA 508 384 6151		

11. Transporter 2 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month Day Year
Address and telephone no.		

DISPOSAL SITE

12. Discrepancy indication space

13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in Item 12.

Grid Coordinates East ____ North ____ El ____

Printed/typed name & title	Signature	Month Day Year
JAMES OWENS	[signature]	9 12 00

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204-FS-C6

ORIGINAL RETURN TO GENERATOR

Pg

. 1 of 6

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   - Friable asbestos material
   - Nonfriable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

Pg. 2 of 6

WASTE MANAGEMENT

CHICOPEE SANITARY LANDFILL FACILITY

SPECIAL WASTE LOG

Date: 9-12-00 Time: 8:00 Ticket Number: 26965

1. Raymark Superfund Site 06615
Generator's Name
Shore Rd, Stratford Ct
Generator's Address
617-918-1342
Generator's Phone

2. Franklin Environmental
Operator's Name
185 Industrial Rd. Wrentham MA
Operator's Address
508-384-6151
Operator's Phone

3. Waste Disposal Site Name, Mailing Address, Physical Site Name and Location, and Telephone Number:
Connecticut Valley Sanitary Waste Disposal, Inc., 600 New Ludlow Road, South Hadley, MA 01075
Chicopee Sanitary Landfill Facility, 161 New Lombard Road, Chicopee, MA - (413) 594-4172

4. Name and Address of Reponsible Agency:
Regional Asbestos Coordinator, US EPA, Region 1, JFK Federal Building, Boston, MA 02203 or
DEP, Western Region, State House West, 436 Dwight Street, Springfield, MA 01103

5. Description of Waste Disposed: ACM

6. Number and type of Containers: _____ 7. Total Quantity (yds): _____

8. Special Handling Instructions and Other Additional Information _____

9. _____ _____ _____
Operator's Certification (Printed Name & Title) (Signature) (Date)

(I certify above that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, package, marked, and labeled; and, are in all respects in proper condition for transport by highway and for disposal according to applicable international and government regulations.)

10. Franklin James Parsons
Transporter 1 (Name/Title, Address & Tel. #)
Franklin Environmental
Wrentham MA 508-384-6151

11. _____
Transporter 2 (Name, Title, Address & Tel. #)

12. Discrepancies: _____

13. James Parsons James Parsons 9-12-00
Disposal Certification (Printed Name & Title) (Signature) (Date)

WHITE-LANDFILL – CANARY-GENERATOR – PINK-HAULER

Pg. 3 of 6

WASTE SHIPMENT RECORD #002

REPORT DATE

GENERATOR

1. Work site name and mailing address
RAYMARK SUPERFUND SITE
SHORE ROAD
STRATFORD, CT 06615 O.U. #5

Owner's Name: US EPA REGION 1, US ARMY CORPS OF ENGINEERS

Owner's telephone no.: 617-918-1342

2. Operator's name and address
FRANKLIN ENVIRONMNETAL SERVICES, INC.
185 INDUSTRIAL ROAD
WRENTHAM, MA 02093

Operator's telephone no.: 508-384-6151

3. Waste Disposal Site (WDS)
Name CT VALLEY SANITARY LANDFILL
Mailing Address 161 NEW LUMBAND ROAD
CHICOPEE, MA
Physical Site Location SAME

WDS telephone no. 413-594-4172

Additional Information

4. Name and address of responsible agency
US EPA REGION 1/US ARMY CORPS ENGINEERS, N.E. DISTRICT
WESTERN PROJECT OFFICE
570 PATRIOT AVENUE, BOX 70, CHICOPEE, MA 01022-1634

5. Description of materials	6. Containers No.	Type	7. Total quantity m³ (yd³)
RQ, ASBESTOS,9, NA 2212, 111 RQ= 1 LB (ONE POUND)		ROLL OFF	25 YARDS

8. Special handling instructions and additional information

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Printed/typed name & title	Signature	Month Day Year
Robert Tess Project Manager	[signature]	09 12 2000

TRANSPORTER

10. Transporter 1 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month Day Year
Franklin Environmental	[signature]	9 12 00
Address and telephone no. 185 Industrial Rd Wrentham MA 508 384 6151		

11. Transporter 2 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month Day Year
Address and telephone no.		

DISPOSAL SITE

12. Discrepancy indication space

13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in Item 12.

Grid Coordinates: East ____ North ____ El ____

Printed/typed name & title	Signature	Month Day Year
JAMES Powers	[signature]	9-12-00

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204-FS-C6

ORIGINAL RETURN TO GENERATOR

Pg. 4 of 6

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   - Friable asbestos material
   - Nonfriable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

Pg. 5 of 6

WASTE MANAGEMENT

CHICOPEE SANITARY LANDFILL FACILITY

SPECIAL WASTE LOG

Date: 9-12-00 Time: 13:48 Ticket Number: 27093

1. Raymark Superfund Site
Generator's Name

2. Franklin Environmental
Operator's Name

Shore Rd Stamford Ct 06615
Generator's Address

185 Industrial Rd Wrentham MA 02093
Operator's Address

617 918 1342
Generator's Phone

508 384 6939
Operator's Phone

3. Waste Disposal Site Name, Mailing Address, Physical Site Name and Location, and Telephone Number:
Connecticut Valley Sanitary Waste Disposal, Inc. 1600 New Ludlow Road, South Hadley, MA 01075
Chicopee Sanitary Landfill Facility, 161 New Lombard Road, Chicopee, MA – (413) 594-4172

4. Name and Address of Reponsible Agency:
Regional Asbestos Coordinator, US EPA, Region 1, JFK Federal Building, Boston, MA 02203 or
DEP, Western Region, State House West, 436 Dwight Street, Springfield, MA 01103

5. Description of Waste Disposed: ACM

6. Number and type of Containers: 7. Total Quantity (yds)

8. Special Handling Instructions and Other Additional Information

9.
Operator's Certification (Printed Name & Title) (Signature) (Date)

(I certify above that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway and for disposal according to applicable international and government regulations.)

10. Transporter 1 (Name, Title, Address & Tel. #)
Franklin Environmental
185 Industrial Rd Wrentham MA 02093

11. Transporter 2 (Name, Title, Address & Tel. #)

12. Discrepancies:

13. James Lewis
Disposal Certification (Printed Name & Title) (Signature) 9-12-00 (Date)

WHITE-LANDFILL – CANARY-GENERATOR – PINK-HAULER

Pg. 6 of 6

APPENDIX B

GEOTECHNICAL TESTING DATA

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT Blakeslee Arpaia Chapman	PROJECT NAME Housatonic Boat Club	
		LOCATION Stratford, CT	

	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. B-1
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	START DATE 5/3/00
SIZE I.D.	3.75"		1.5"		N. COORDINATE	AT 4.0 FT. AFTER 0 HOURS	
HAMMER WT.			140lbs.		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 5/3/00
HAMMER FALL			30"				

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					Pier .25	
					Air	
5						
10						
	1	4-5-3-1	11.00'-13.00'		Brown fine SAND 11.0	
					Black ORGANIC SILT, little fine to medium Sand 12.5	
15	2	2-1-1-1	15.00'-17.00'			
					Black ORGANIC SILT 18.0	
20	3	1-0-1-1	20.00'-22.00'			
25	4	1-1-1-1	25.00'-27.00'			
30	5	2-3-3-7	30.00'-32.00'			
					Gray fine to medium SAND, trace Gravel & Silt 31.5	
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: CHRISTIANA
INSPECTOR:
SHEET 1 OF 2 HOLE NO. B-1

Pg

. 1 of 4 (boring location shown on Drawing C-3, no analytical samples taken)

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT Blakeslee Arpaia Chapman	PROJECT NAME Housatonic Boat Club LOCATION Stratford, CT

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
35	6	3-9-22-36	35.00'-37.00'		Brown fine SAND, trace Silt — 36.0	
40	7	23-27-36-39	40.00'-42.00'		Bottom of Boring @ 42.0' — 42.0	
45						
50						
55						
60						
65						
70						
75						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: CHRISTIANA
INSPECTOR:
SHEET 2 OF 2 HOLE NO. B-1

Pg. 2 of 4

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT: Blakeslee Arpaia Chapman

PROJECT NAME: Housetonic Boat Club

LOCATION: Stratford, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.5"	
HAMMER WT.			140lbs.	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-2

GROUND WATER OBSERVATIONS
AT 5.0 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 5/3/00
FINISH DATE 5/3/00

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					ASPHALT — 1.7	
					Browm fine to medium SAND, some Silt, little Gravel - FILL	
5	1	4-15-7-12	5.00'-7.00'			
					Brown fine to medium SAND, some Silt, little Gravel & Cobbles - FILL — 9.0	
10	2	1-1-1-2	10.00'-12.00'		Black ORGANIC SILT — 10.0	
15	3	2-0-1-2	15.00'-17.00'			
20	4	1-2-2-2	20.00'-22.00'			
25	5	2-2-2-6	25.00'-27.00'			
					Gray fine to medium SAND, little Silt — 26.5	
30	6	6-7-13-10	30.00'-32.00'			
35					Brown fine SAND, trace Silt — 34.0	

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: CHRISTIANA
INSPECTOR:

SHEET 1 OF 2 HOLE NO. B-2

Pg. 3 of 4 (boring location shown on Drawing C-3, no analytical samples taken)

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT Blakeslee Arpaia Chapman	PROJECT NAME Housatonic Boat Club LOCATION Stratford, CT

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
35	7	15-27-29-34	35.00'-37.00'			
40	8	17-23-27-30	40.00'-42.00'			
					Bottom of Boring @ 42.0' 42.0	
45						
50						
55						
60						
65						
70						
75						

LEGEND: COL. A:

SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON

PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: CHRISTIANA
INSPECTOR:

SHEET 2 OF 2 HOLE NO. B-2

Pg. 4 of 4

APPENDIX C

AIR MONITORING DATA

Air Monitoring Results

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
P-bSP10405	4/5/00	< 6x10E-6							
P-bSP30405	4/5/00	< 6x10E-6							
P-bSP40405	4/5/00	< 6x10E-6							
L-bSP10405	4/5/00					< 0.00008			
L-bSP30405	4/5/00					< 0.00008			
L-bSP40405	4/5/00					< 0.00008			
L-bSP60405	4/5/00					< 0.00008			
D-bSP10405	4/5/00							0.006	
D-bSP30405	4/5/00							0.001	
D-bSP40405	4/5/00							0.007	
D-bSP60405	4/5/00							0.003	
P-bSP10406	4/6/00	< 6x10E-6							
P-bSP30406	4/6/00	< 6x10E-6							
P-bSP40406	4/6/00	< 6x10E-6							
P-bSP60406	4/6/00	< 6x10E-6							
A-bSP10406	4/6/00			0.001					
A-bSP30406	4/6/00			0.001					
A-bSP40406	4/6/00			<0.0003					
A-bSP60406	4/6/00			<0.0003					
L-bSP10406	4/6/00					< 0.00008			
L-bSP30406	4/6/00					< 0.00008			
L-bSP40406	4/6/00					< 0.00008			
L-bSP60406	4/6/00					< 0.00008			
D-bSP10406	4/6/00							0.019	
D-bSP30406	4/6/00							0.020	
D-bSP40406	4/6/00							0.024	
D-bSP60406	4/6/00							0.027	
P-bSP10407	4/7/00	< 6x10E-6							
P-bSP30407	4/7/00	< 6x10E-6							
P-bSP40407	4/7/00	< 6x10E-6							
P-bSP60407	4/7/00	< 6x10E-6							
A-bSP10407	4/7/00			0.001					
A-bSP30407	4/7/00			0.001					
A-bSP40407	4/7/00			0.001					
A-bSP60407	4/7/00			0.001					
L-bSP10407	4/7/00					< 0.00008			
L-bSP30407	4/7/00					< 0.00008			
L-bSP40407	4/7/00					< 0.00008			
L-bSP60407	4/7/00					< 0.00008			
D-bSP10407	4/7/00							0.010	
D-bSP30407	4/7/00							0.007	
D-bSP40407	4/7/00							0.013	
D-bSP60407	4/7/00							0.009	
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:
1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
A-prSP10410	4/10/00			< 0.0003					
A-prSP30410	4/10/00			<0.0003					
A-prSP40410	4/10/00			<0.0003					
A-prSP60410	4/10/00			<0.0003					
L-prSP10410	4/10/00					< 0.00008			
L-prSP30410	4/10/00					< 0.00008			
L-prSP40410	4/10/00					0.0001			
L-prSP60410	4/10/00					0.0006			
D-prSP10410	4/10/00							0.008	
D-prSP30410	4/10/00							0.006	
D-prSP40410	4/10/00							0.007	
D-prSP60410	4/10/00							0.005	
A-prSP10411	4/11/00			<0.0003					
A-prSP30411	4/11/00			<0.0003					
A-prSP40411	4/11/00			<0.0003					
A-prSP60411	4/11/00			<0.0003					
A-pl10411	4/11/00				0.001				
A-pl20411	4/11/00				<0.0003				
L-prSP10411	4/11/00					< 0.00008			
L-prSP30411	4/11/00					< 0.00008			
L-prSP40411	4/11/00					< 0.00008			
L-prSP60411	4/11/00					< 0.00008			
L-pl10411	4/11/00						< 0.00008		
L-pl20411	4/11/00						< 0.00008		
D-prSP10411	4/11/00							0.023	
D-prSP30411	4/11/00							0.013	
D-prSP40411	4/11/00							0.010	
D-prSP60411	4/11/00							0.013	
P-pl10412	4/12/00		< 6x10E-6						
P-pl20412	4/12/00		< 6x10E-6						
A-prSP10412	4/12/00			< 0.0003					
A-prSP30412	4/12/00			< 0.0003					
A-prSP40412	4/12/00			< 0.0003					
A-prSP60412	4/12/00			< 0.0003					
A-pl10412	4/12/00				0.015				
A-pl20412	4/12/00				0.009				
L-pl10412	4/12/00						< 0.00008		
L-pl20412	4/12/00						< 0.00008		
D-prSP10412	4/12/00							0.015	
D-prSP30412	4/12/00							0.011	
D-prSP40412	4/12/00							0.010	
D-prSP60412	4/12/00							0.008	
D-pl0412	4/12/00								N/A
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:
1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date			Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal		Personal	Perimeter	Personal
P-prSP10413	4/13/00	< 6x10E-6							
P-prSP30413	4/13/00	< 6x10E-6							
P-prSP40413	4/13/00	< 6x10E-6							
P-prSP60413	4/13/00	< 6x10E-6							
A-prSP10413	4/13/00			<0.0003					
A-prSP30413	4/13/00			<0.0003					
A-prSP40413	4/13/00			<0.0003					
A-prSP60413	4/13/00			< 0.0003					
A-pl10413	4/13/00				0.007				
A-pl20413	4/13/00				0.005				
D-prSP10413	4/13/00							0.010	
D-prSP30413	4/13/00							0.023	
D-prSP40413	4/13/00							0.009	
D-prSP60413	4/13/00							0.006	
D-pl0413	4/13/00								0.096
A-prSP10414	4/14/00			0.001					
A-prSP30414	4/14/00			0.001					
A-prSP40414	4/14/00			0.001					
A-prSP60414	4/14/00			0.001					
A-pl10414	4/14/00				0.004				
A-pl20414	4/14/00				0.005				
D-prSP10414	4/14/00							0.090	
D-prSP30414	4/14/00							0.026	
D-prSP40414	4/14/00							0.010	
D-prSP60414	4/14/00							0.013	
D-pl0414	4/14/00								0.439
A-prSP10417	4/17/00			0.002					
A-prSP30417	4/17/00			0.001					
A-prSP40417	4/17/00			< 0.0003					
A-prSP60417	4/17/00			0.001					
A-pl10417	4/17/00				0.009				
A-pl20417	4/17/00				0.004				
D-prSP10417	4/17/00							0.058	
D-prSP30417	4/17/00							0.021	
D-prSP40417	4/17/00							0.000	
D-prSP60417	4/17/00							0.030	
L-prSP10418	4/18/00					< 0.00008			
L-prSP30418	4/18/00					< 0.00008			
L-prSP40418	4/18/00					< 0.00008			
L-prSP60418	4/18/00					< 0.00008			
D-prSP10418	4/18/00							0.014	
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
D-prSP30418	4/18/00							0.006	
D-prSP40418	4/18/00							0.007	
D-prSP60418	4/18/00							0.009	
P-prSP10419	4/19/00	< 6x10E-6							
P-prSP30419	4/19/00	< 6x10E-6							
P-prSP40419	4/19/00	< 6x10E-6							
P-prSP60419	4/19/00	< 6x10E-6							
D-prSP10419	4/19/00							0.005	
D-prSP30419	4/19/00							0.006	
D-prSP40419	4/19/00							0.005	
D-prSP60419	4/19/00							0.004	
L-pl10420	4/20/00						0.0002		
L-pl20420	4/20/00						0.0001		
D-prSP10420	4/20/00							0.028	
D-prSP30420	4/20/00							0.039	
D-prSP40420	4/20/00							0.015	
D-prSP60420	4/20/00							0.012	
D-prSP20421	4/21/00							0.051	
D-prSP30421	4/21/00							0.027	
D-prSP40421	4/21/00							0.024	
D-prSP60421	4/21/00							0.032	
D-pl0421	4/21/00								0.097
A-prSP10424	4/24/00			0.001					
A-prSP30424	4/24/00			0.001					
A-prSP40424	4/24/00			< 0.0003					
A-prSP60424	4/24/00			0.001					
A-pl10424	4/24/00				0.004				
A-pl20424	4/24/00				0.006				
D-prSP10424	4/24/00							0.008	
D-prSP30424	4/24/00							0.004	
D-prSP40424	4/24/00							0.022	
D-prSP60424	4/24/00							0.001	
L-prSP10425	4/25/00					< 0.00008			
L-prSP30425	4/25/00					< 0.00008			
L-prSP40425	4/25/00					< 0.00008			
L-prSP60425	4/25/00					< 0.00008			
D-prSP10425	4/25/00							0.016	
D-prSP30425	4/25/00							0.015	
D-prSP40425	4/25/00							0.000	
D-prSP60425	4/25/00							0.004	
P-prSP10426	4/26/00	< 6x10E-6							
P-prSP30426	4/26/00	< 6x10E-6							
P-prSP40426	4/26/00	< 6x10E-6							
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
P-prSP60426	4/26/00	< 6x10E-6							
D-prSP10426	4/26/00							N/A	
D-prSP30426	4/26/00							0.006	
D-prSP40426	4/26/00							0.000	
D-prSP60426	4/26/00							0.000	
L-pl10427	4/27/00						< 0.00008		
L-pl20427	4/27/00						< 0.00008		
D-prSP10427	4/27/00							0.046	
D-prSP30427	4/27/00							0.021	
D-prSP40427	4/27/00							0.000	
D-prSP60427	4/27/00							0.007	
D-prSP10428	4/28/00							0.064	
D-prSP30428	4/28/00							0.041	
D-prSP40428	4/28/00							0.006	
D-prSP60428	4/28/00							0.046	
D-pl0428	4/28/00								0.414
A-prSP10501	5/1/00			0.001					
A-prSP30501	5/1/00			0.001					
A-prSP40501	5/1/00			0.001					
A-prSP60501	5/1/00			0.001					
A-pl10501	5/1/00				0.006				
A-pl20501	5/1/00				0.004				
D-prSP10501	5/1/00							**3.809**	
D-prSP30501	5/1/00							0.078	
D-prSP40501	5/1/00							0.047	
D-prSP60501	5/1/00							0.014	
L-prSP10502	5/2/00					< 0.00008			
L-prSP30502	5/2/00					< 0.00008			
L-prSP40502	5/2/00					< 0.00008			
L-prSP60502	5/2/00					< 0.00008			
D-prSP10502	5/2/00							**0.104**	
D-prSP30502	5/2/00							0.049	
D-prSP40502	5/2/00							0.003	
D-prSP60502	5/2/00							0.053	
P-prSP10503	5/3/00	< 6x10E-6							
P-prSP30503	5/3/00	< 6x10E-6							
P-prSP40503	5/3/00	< 6x10E-6							
P-prSP60503	5/3/00	< 6x10E-6							
D-prSP10503	5/3/00							0.015	
D-prSP30503	5/3/00							0.017	
D-prSP40503	5/3/00							0.007	
D-prSP60503	5/3/00							0.004	
Action Levels		1x10E-50.00001	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
L-pl10504	5/4/00						0.0203		
L-pl20504	5/4/00						0.0004		
D-prSP10504	5/4/00							0.017	
D-prSP30504	5/4/00							0.013	
D-prSP40504	5/4/00							0.015	
D-prSP60504	5/4/00							0.016	
D-prSP10505	5/5/00							0.038	
D-prSP30505	5/5/00							0.031	
D-prSP40505	5/5/00							0.064	
D-prSP60505	5/5/00							0.041	
D-pl0505	5/5/00								0.175
D-prSP10508	5/8/00							0.027	
D-prSP30508	5/8/00							0.031	
D-prSP40508	5/8/00							**0.101**	
D-prSP60508	5/8/00							0.029	
A-prSP10509	5/9/00			0.001					
A-prSP30509	5/9/00			< 0.0003					
A-prSP40509	5/9/00			0.001					
A-prSP60509	5/9/00			< 0.0003					
D-prSP10509	5/9/00							0.049	
D-prSP30509	5/9/00							0.047	
D-prSP40509	5/9/00							0.077	
D-prSP60509	5/9/00							**0.203**	
P-prSP10510	5/10/00	< 6x10E-6							
P-prSP30510	5/10/00	< 6x10E-6							
P-prSP40510	5/10/00	< 6x10E-6							
P-prSP60510	5/10/00	< 6x10E-6							
A-prSP10510	5/10/00			0.001					
A-prSP30510	5/10/00			0.001					
A-prSP40510	5/10/00			0.001					
A-prSP60510	5/10/00			0.001					
A-pl10510	5/10/00				0.006				
A-pl20510	5/10/00				0.004				
L-pl10510	5/10/00						0.0009		
L-pl20510	5/10/00						N/A		
D-prSP10510	5/10/00							0.064	
D-prSP30510	5/10/00							0.000	
D-prSP40510	5/10/00							0.000	
D-prSP60510	5/10/00							0.000	
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
A-prSP10511	5/11/00			0.001					
A-prSP30511	5/11/00			N/A					
A-prSP40511	5/11/00			0.001					
A-prSP60511	5/11/00			0.001					
A-pl10511	5/11/00				0.003				
A-pl20511	5/11/00				0.004				
L-pl10511	5/11/00						< 0.00008		
L-pl20511	5/11/00						0.0005		
D-prSP10511	5/11/00							0.021	
D-prSP30511	5/11/00							0.007	
D-prSP40511	5/11/00							0.028	
D-prSP60511	5/11/00							0.012	
A-pl10512	5/12/00				0.003				
A-pl20512	5/12/00				0.005				
D-prSP10512	5/12/00							0.000	
D-prSP30512	5/12/00							0.000	
D-prSP40512	5/12/00							0.000	
D-prSP60512	5/12/00							0.000	
D-pl0512	5/12/00								0.167
D-prSP10513	5/13/00							0.000	
D-prSP30513	5/13/00							0.014	
D-prSP40513	5/13/00							0.000	
D-prSP60513	5/13/00							0.001	
D-prSP10515	5/15/00							0.017	
D-prSP30515	5/15/00							0.007	
D-prSP40515	5/15/00							0.009	
D-prSP60515	5/15/00							0.008	
D-prSP10516	5/16/00							0.041	
D-prSP30516	5/16/00							0.014	
D-prSP40516	5/16/00							0.032	
D-prSP60516	5/16/00							0.018	
D-prSP10517	5/17/00							0.018	
D-prSP30517	5/17/00							0.012	
D-prSP40517	5/17/00							0.018	
D-prSP60517	5/17/00							0.024	
A-prSP10518	5/18/00			0.001					
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:
1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
A-prSP30518	5/18/00			0.001					
A-prSP40518	5/18/00			< 0.0003					
A-prSP60518	5/18/00			0.001					
D-prSP10518	5/18/00							0.009	
D-prSP30518	5/18/00							0.045	
D-prSP40518	5/18/00							0.000	
D-prSP60518	5/18/00							0.000	
D-prSP10519	5/19/00							N/A	
D-prSP30519	5/19/00							N/A	
D-prSP40519	5/19/00							N/A	
D-prSP60519	5/19/00							N/A	
D-prSP10522	5/22/00							0.000	
D-prSP30522	5/22/00							0.007	
D-prSP40522	5/22/00							0.000	
D-prSP60522	5/22/00							0.000	
D-prSP10523	5/23/00							N/A	
D-prSP30523	5/23/00							0.030	
D-prSP40523	5/23/00							0.007	
D-prSP60523	5/23/00							0.022	
D-prSP10524	5/24/00							N/A	
D-prSP30524	5/24/00							N/A	
D-prSP40524	5/24/00							N/A	
D-prSP60524	5/24/00							N/A	
D-prSP10525	5/25/00							0.025	
D-prSP30525	5/25/00							0.017	
D-prSP40525	5/25/00							0.008	
D-prSP60525	5/25/00							0.019	
D-prSP10526	5/26/00							0.010	
D-prSP30526	5/26/00							0.005	
D-prSP40526	5/26/00							0.011	
D-prSP60526	5/26/00							0.009	
D-prSP10530	5/30/00							0.000	
D-prSP30530	5/30/00							0.015	
D-prSP40530	5/30/00							0.000	
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:
1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
D-prSP60530	5/30/00							0.000	
D-prSP10531	5/31/00							0.004	
D-prSP30531	5/31/00							0.013	
D-prSP40531	5/31/00							0.012	
D-prSP60531	5/31/00							0.010	
D-prSP10601	6/1/00							0.083	
D-prSP30601	6/1/00							0.087	
D-prSP40601	6/1/00							**0.210**	
D-prSP60601	6/1/00							0.093	
D-prSP10602	6/2/00							0.081	
D-prSP30602	6/2/00							0.029	
D-prSP40602	6/2/00							**0.115**	
D-prSP60602	6/2/00							0.033	
D-prSP10605	6/5/00							0.016	
D-prSP30605	6/5/00							0.004	
D-prSP40605	6/5/00							0.032	
D-prSP60605	6/5/00							0.001	
D-prSP10606	6/6/00							N/A	
D-prSP30606	6/6/00							N/A	
D-prSP40606	6/6/00							N/A	
D-prSP60606	6/6/00							N/A	
D-prSP10607	6/7/00							N/A	
D-prSP30607	6/7/00							N/A	
D-prSP40607	6/7/00							N/A	
D-prSP60607	6/7/00							N/A	
D-prSP10608	6/8/00							0.021	
D-prSP30608	6/8/00							0.17	
D-prSP40608	6/8/00							**20.66**	
D-prSP60608	6/8/00							N/A	
D-prSP10609	6/9/00							0.047	
D-prSP30609	6/9/00							0.045	
D-prSP40609	6/9/00							**80.689**	
D-prSP60609	6/9/00							N/A	
D-prSP10613	6/13/00							0.000	
D-prSP30613	6/13/00							0.000	
D-prSP40613	6/13/00							**0.109**	
D-prSP60613	6/13/00							N/A	
D-prSP10614	6/14/00							0.042	
Action Levels		1x10E-5	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

Sample ID	Date	PCBs		Asbestos		Lead		Dust	
		Perimeter	Personal	Perimeter	Personal	Perimeter	Personal	Perimeter	Personal
D-prSP30614	6/14/00							0.000	
D-prSP40614	6/14/00							0.098	
D-prSP60614	6/14/00							N/A	
D-prSP10615	6/15/00							0.000	
D-prSP30615	6/15/00							0.000	
D-prSP40615	6/15/00							0.095	
D-prSP60615	6/15/00							N/A	
D-pr SP10616	6/16/00							0.026	
D-prSP30616	6/16/00							0.088	
D-prSP40616	6/16/00							**0.148**	
D-prSP60616	6/16/00							N/A	
D-prSP10620	6/20/00							0.034	
D-prSP30620	6/20/00							0.013	
D-prSP40620	6/20/00							0.092	
D-prSP60620	6/20/00							N/A	
D-prSP10621	6/21/00							0.015	
D-prSP30621	6/21/00							0.013	
D-prSP40621	6/21/00							**0.137**	
D-prSP60621	6/21/00							N/A	
D-prSP10622	6/22/00							0.009	
D-prSP30622	6/22/00							0.022	
D-prSP40622	6/22/00							**0.123**	
D-prSP60622	6/22/00							N/A	
D-prSP10626	6/26/00							0.025	
D-prSP30626	6/26/00							0.096	
D-prSP40626	6/26/00							**0.121**	
D-prSP60626	6/26/00							N/A	
D-prSP10627	6/27/00							0.029	
D-prSP30627	6/27/00							0.056	
D-prSP40627	6/27/00							**0.159**	
D-prSP60627	6/27/00							0.043	
Action Levels		1x10E-51	0.25	0.01	0.05	0.003	0.025	0.1	2.5

Notes:

1. Sample ID: P=PCBs, A=Asbestos, L=Lead, D=Dust, b=background, pr=perimeter, pl=personal, SP1=sample Location.
2. Action levels and results are reported in mg/m^3 for PCBs, lead, and dust and f/cc for asbestos.
3. Blank means samples were not analyzed for that parameter and N/A means not available.
4. ND means non-detect. The laboratory reportable limits are below the action levels.
5. Bolded entries indicate exceedance of the action level.

APPENDIX D

AS-BUILT DRAWINGS

(Electronic files of the Full-size drawings are included on the CD)

Appendix D
List of As-Built Drawings

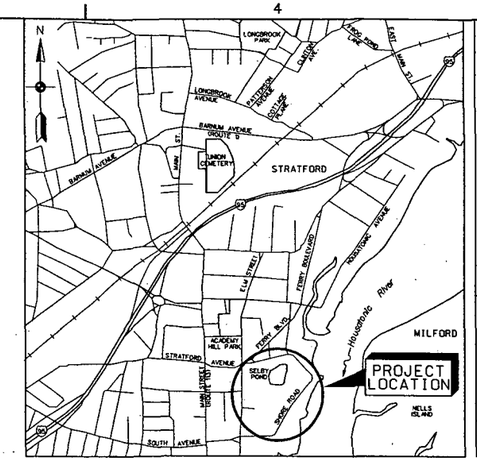
Cover Sheet and Index ..... USACE T-1
Demolition Plan ..... USACE C-1
General Plan ..... USACE C-2
Site Plan ..... USACE C-3
Cross Sections ..... USACE C-4
Miscellaneous Details ..... USACE C-5
Water and Sewer Line Details ..... USACE M-1
Electrical Plans, Diagram, Notes and Legend ..... USACE E-1

Boat Shed Foundation by Westcott & Mapes, Inc. S-1
Boat Shed Foundation by Westcott & Mapes, Inc S-2

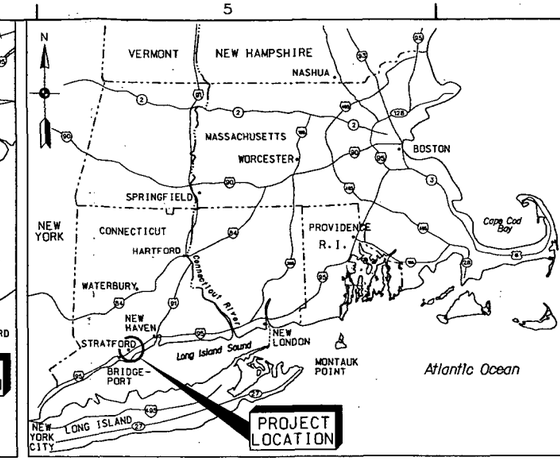
Sheet Piling Configuration by Stone & Webster 06851-DY-1A-3

US Army Corps
of Engineers
New England District

EPA
Environmental Protection Agency
Region No. 1
Boston, Massachusetts



VICINITY MAP
SCALE IN FEET
2400' 0 2400 feet



LOCATION MAP
SCALE IN MILES
50 0 50 Miles

INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD

STRATFORD, CONNECTICUT

LEGEND

NEW	EXISTING	DESCRIPTION
CB #1		CATCH BASIN (CB)
		SEWER MANHOLE (SMH)
		UTILITY POLE (U POLE)
15	15	CONTOUR
		EARTH CUT
		EARTH FILL
NE		ELECTRICAL LINE
NF		FENCE
		GUARDRAIL LINE
		PROPERTY LINE
		NATURAL GROUND SURFACE
SS		SANITARY SEWER LINE
		SIGN
13.5	13.5	SPOT ELEVATION
		STONE
NW		WATER LINE
		WETLANDS
M		WATER METER VAULT

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MA

RECORD DRAWING AS-BUILT

INDEX TO DRAWINGS

SHEET NO.	REFERENCE NO.	DRAWING NO.	TITLE
1	T-1	EPA-3	COVER SHEET AND INDEX
2	C-1	EPA-3	DEMOLITION PLAN
3	C-2	EPA-3	GENERAL PLAN
4	C-3	EPA-3	SITE PLAN
5	C-4	EPA-3	CROSS SECTIONS
6	C-5	EPA-3	MISCELLANEOUS DETAILS
7	M-1	EPA-3	WATER AND SEWER LINE DETAILS
8	E-1	EPA-3	~~ELECTRICAL PLANS DIAGRAM~~-NOTES AND LEGEND
-	S-1	EPA-3	FOUNDATION PLAN AND NOTES
-	S-2	EPA-3	SECTIONS AND DETAILS
-	06851-DY-1A-3	EPA-3	SHEET PILING CONFIGURATION

GENERAL NOTES:

1. *Field survey performed by Fuss and O'Neil, November 1999.*
2. *Horizontal control is based on Connecticut State Plane Coordinate System, NAD 83.*
3. *Vertical control is based on National Geodetic Vertical Datum (N.G.V.D.) 1929 DATUM.*

VALUE ENGINEERING PAYS DIVIDENDS

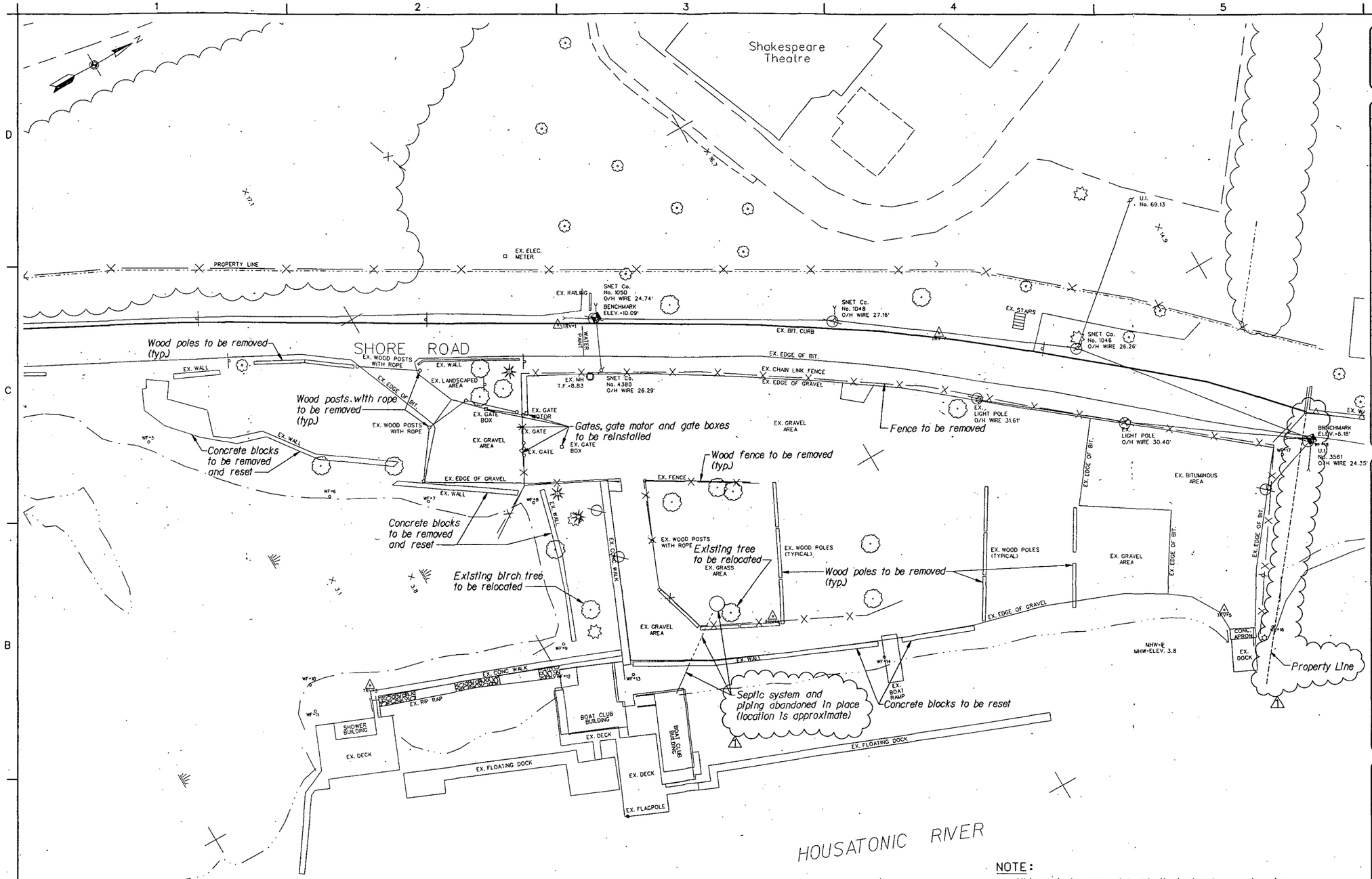
SAFETY PAYS

APPROVED FUNCTIONAL ADEQUACY
TECHNICAL LEAD ENGINEER DATE:
CPC(DSX)SOM
REVIEWED BY:
DEPUTY CHIEF, E/P DIV DATE:
RECOMMENDED BY:
CHIEF, DESIGN BRANCH DATE:
REVIEWED BY:
APPROVED BY:
CHIEF, ENGRG/PLANNING DIV DATE:
CH, HYDR/GEOTECH ENGRG BR DATE:

This project was developed by the New England Division of the U.S. Corps of Engineers. The initials or signature and registration number of a licensed professional appear on the project documents, within the scope of their employment as required by ER 1110-1-8152.

ENVIRONMENTAL PROTECTION AGENCY
REGION
BOSTON, MASSACHUSETTS
INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD, STRATFORD, CT
COVER SHEET AND INDEX

Reference number:
T-1
Sheet 1 of 8



DEMOLITION PLAN

SCALE: 1" = 30'

NOTE:

All trees to be removed inside the boat club property unless indicated to be relocated. The location of trees indicated to be relocated shall be determined in the field by the Contracting Officer's Representative (COR).

GRAPHIC SCALE

1" = 30' 30' 0 30' 60'

US Army Corps of Engineers New England District

Symbol	Description	Date	Appr.	Symbol	Description	Date	Appr.

Rev.

Date: April 2000
Design file no. CHBC06.DGN
Drawing code: EPA-3
Plot date:
Plot scale: 1" = 30'

Designed by: Phil Adler
Drawn by: Stephen W. Kelley
Reviewed by:
Submitted by:
Chief, Civil Engrg. Sect.

U.S. ARMY ENGINEER DISTRICT NEW ENGLAND DIVISION CONCORD, MASSACHUSETTS

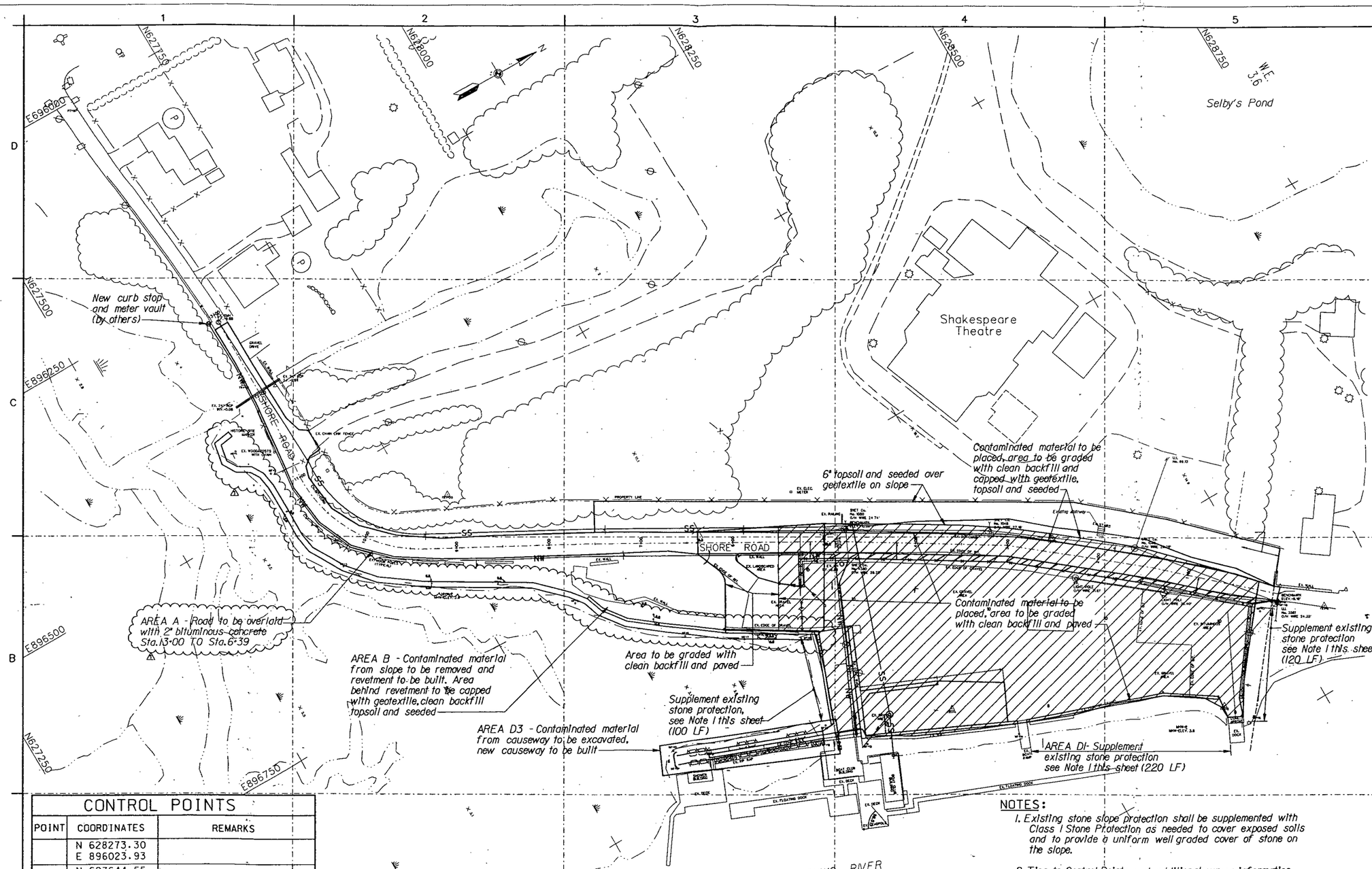
ENVIRONMENTAL PROTECTION AGENCY REGION 1 BOSTON, MASSACHUSETTS

INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD, STRATFORD, CT

DEMOLITION PLAN

Reference number: C-1

Sheet 2 of 8



CONTROL POINTS

POINT	COORDINATES	REMARKS
	N 628273.30 E 896023.93	
	N 627644.55 E 896011.41	
	N 627656.59 E 896559.90	
	N 628114.93 E 896820.61	
	N 628725.35 E 897292.36	
	N 630048.42 E 897418.09	

GENERAL PLAN

SCALE: 1" = 50'

NOTES:

1. Existing stone slope protection shall be supplemented with Class I Stone Protection as needed to cover exposed soils and to provide a uniform well graded cover of stone on the slope.
2. Ties to Control Points and additional survey information are in Survey Field Book.
3. The Limits of Contractor's Work Area shall not extend beyond 5' into the wetland or river and shall be limited by the chain link fence at the property line. The Limits of Contractor's Work Area shall not exceed 20' beyond Sta. 0+00 or 20' beyond Sta. 13+00.
4. Water, sewer, and electric utilities are shown on Sheet C-3 and E-1.
5. Some light poles/SNET poles were relocated or removed in order to provide required over head clearance. these poles were installed in 3" sond tube using clean fill.

GRAPHIC SCALE
1" = 50' 50' 0 50' 100'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR AC-DRAFTS	10/19/01	

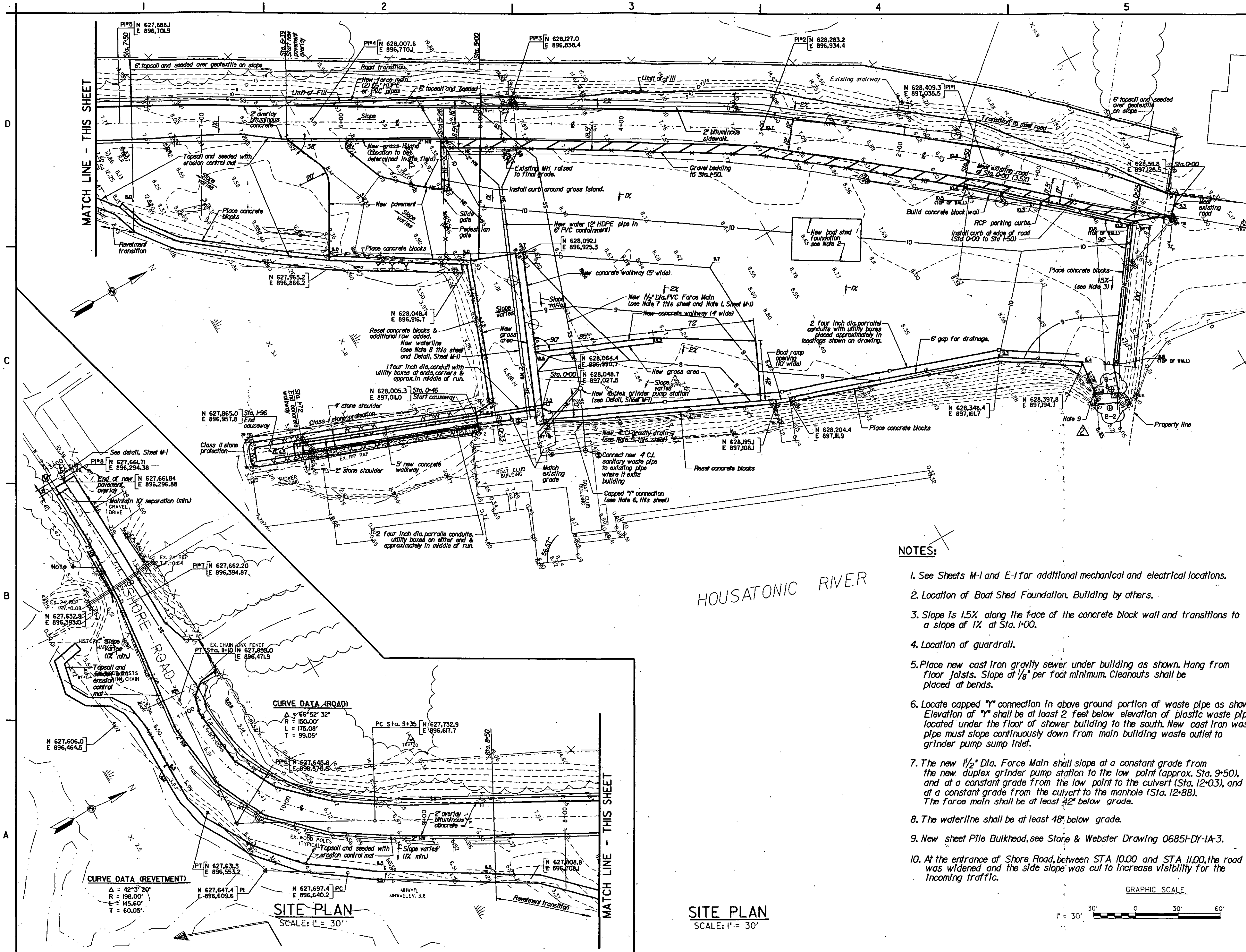
Designed by: Phillauder	Date: April 2000
Drawn by: Stephen W. Kelley	Design file no. CHBC101DGN
Reviewed by:	Drawing code: EPA-3
Submitted by: Chief, General Engrg Sect	File name: CHBC101 Plot scale: 1" = 50'

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

ENVIRONMENTAL PROTECTION AGENCY
REGION 1
BOSTON, MASSACHUSETTS
INTERIM NON TIME CRITICAL REMOVAL ACTION
(NTCRA) - SHORE ROAD, STRATFORD, CT

GENERAL PLAN

Reference number:
C-2
Sheet 3 of 8



NOTES:

1. See Sheets M-1 and E-1 for additional mechanical and electrical locations.

2. Location of Boat Shed Foundation. Building by others.

3. Slope is 1.5% along the face of the concrete block wall and transitions to a slope of 1% at Sta. 1+00.

4. Location of guardrail.

5. Place new cast iron gravity sewer under building as shown. Hang from floor joists. Slope at 1/8" per foot minimum. Cleanouts shall be placed at bends.

6. Locate capped "Y" connection in above ground portion of waste pipe as shown. Elevation of "Y" shall be at least 2 feet below elevation of plastic waste pipe located under the floor of shower building to the south. New cast iron waste pipe must slope continuously down from main building waste outlet to grinder pump sump inlet.

7. The new 1 1/2" Dia. Force Main shall slope at a constant grade from the new duplex grinder pump station to the low point (approx. Sta. 9+50), and at a constant grade from the low point to the culvert (Sta. 12+03), and at a constant grade from the culvert to the manhole (Sta. 12+88). The force main shall be at least 42" below grade.

8. The waterline shall be at least 48" below grade.

9. New sheet Pile Bulkhead, see Stone & Webster Drawing 06851-DY-1A-3.

10. At the entrance of Shore Road, between STA 10.00 and STA 11.00, the road was widened and the side slope was cut to increase visibility for the incoming traffic.

GRAPHIC SCALE

1" = 30' 30' 0 30' 60'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
2	ADDED SOIL BORING LOCATION & DOCK	5/10/02	
1	ISSUED FOR AS-BUILTS	10/11/01	

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS CONCORD, MASSACHUSETTS	Designed by: Phil Muller	Date: April 2000
	Drawn by: Stephen W. Kelley	Design file no. CHBC102.DGN
	Reviewed by:	Drawing code: EPA-3
	Submitted by: Chief, Civil Engrg Sect	File name: Plot date: Plot scale: 1" = 30'

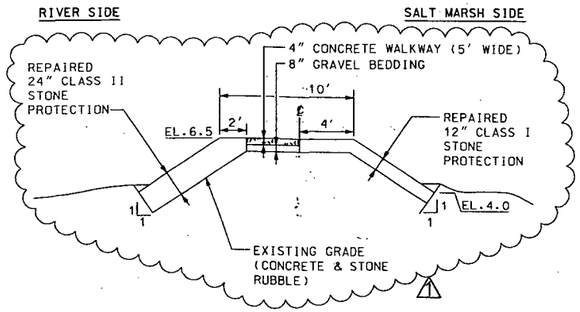
ENVIRONMENTAL PROTECTION AGENCY
REGION I
BOSTON, MASSACHUSETTS

INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD, STRATFORD, CT

SITE PLAN

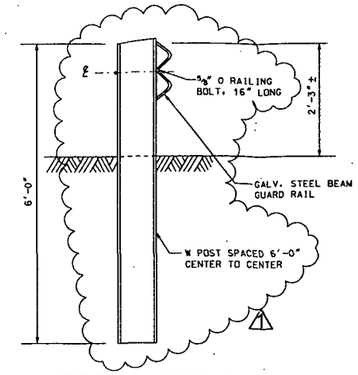
Reference number:
C-3

Sheet 4 of 8



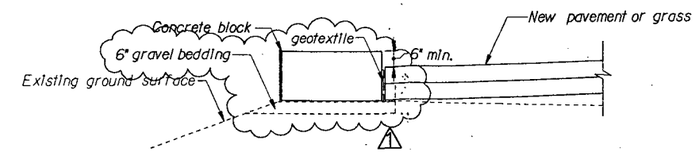
TYPICAL REVETMENT SECTION AT YOUTH BUILDING CAUSEWAY

SCALE: 1" = 5'



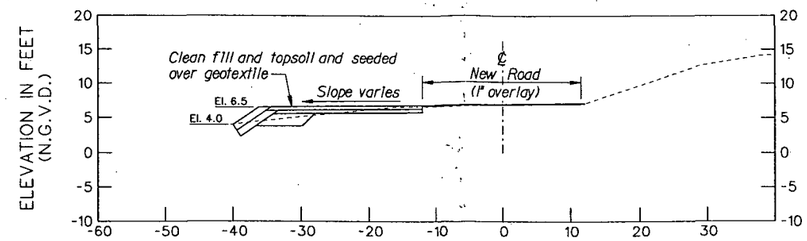
GUARDRAIL DETAIL

N.T.S.

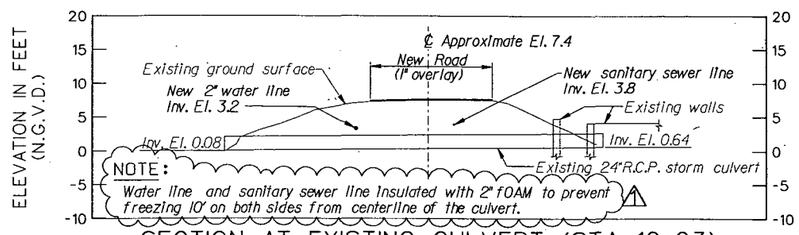


CONCRETE BLOCK DETAIL AT SLOPE

N.T.S.

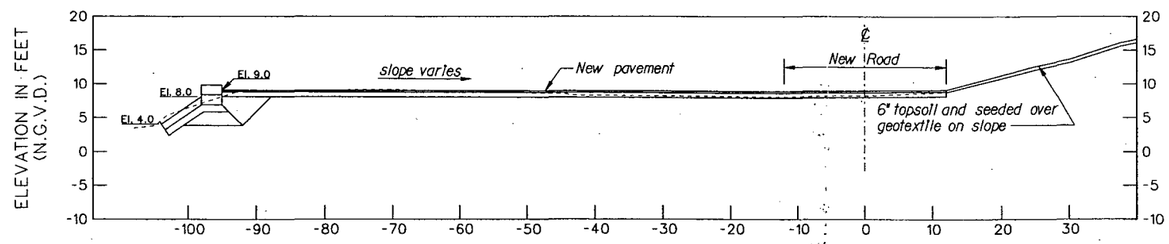


STA. 9+50

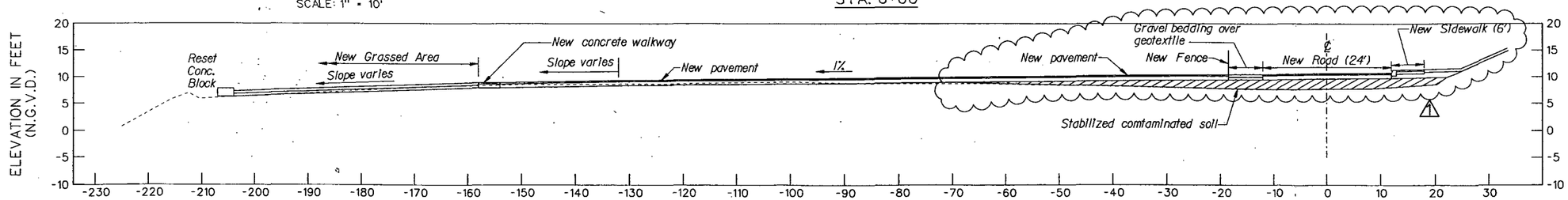


SECTION AT EXISTING CULVERT (STA. 12+03)

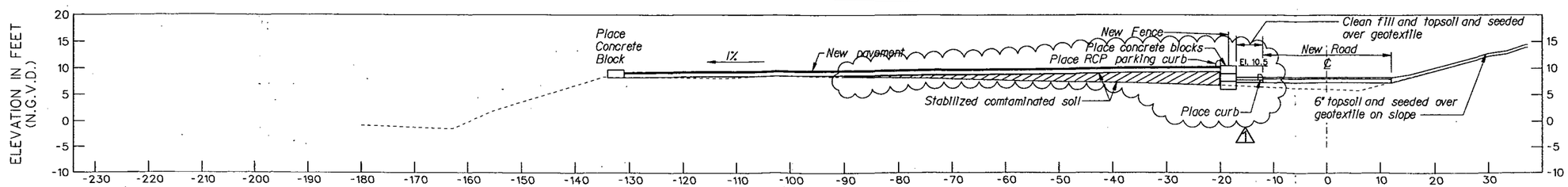
SCALE: 1" = 10'



STA. 6+00



STA. 4+00



STA. 1+00

CROSS SECTIONS

SCALE: 1" = 10'

GRAPHIC SCALES

1" = 5' 5' 0 5' 10'

1" = 10' 10' 0 10' 20'

US Army Corps of Engineers New England District

Symbol	ISSUED FOR AS-BUILTS	10/19/01				
	Description	Date	Appr.	Symbol	Description	Date	Appr.

Designed by: Contractor
Drawn by: Stephen W. Kelley
Reviewed by:
Submitted by:
Chief, Civil Engrg. Sect.
Date: April 2000
Design file no. CHB0105.DGN
Drawing code: EPA-3
File name:
Plot date:
Plot scale: 1" = 10'
Rev.

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

ENVIRONMENTAL PROTECTION AGENCY
REGION 1
BOSTON, MASSACHUSETTS

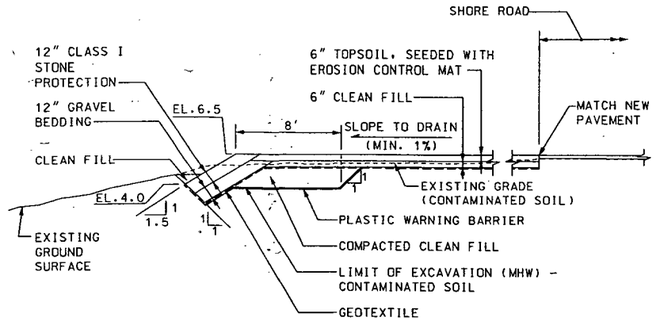
INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD, STRATFORD, CT

CROSS SECTIONS

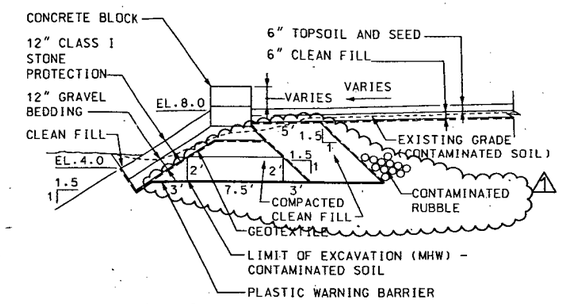
Reference number:

C-4

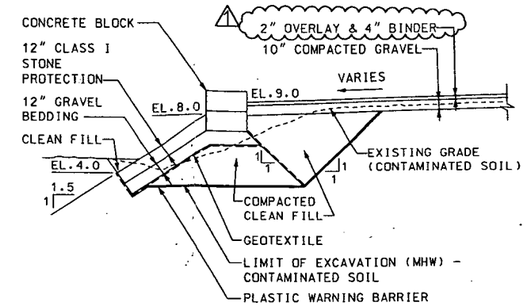
Sheet 5 of 8



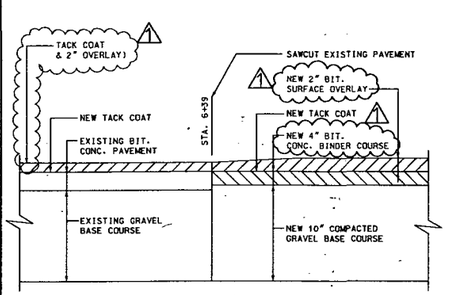
TYPICAL REVETMENT SECTION
STA.8+50 TO STA.11+90
SCALE: 1"=5'



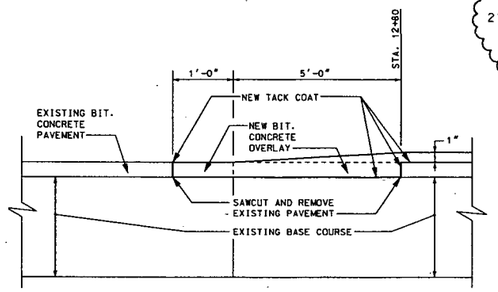
TYPICAL REVETMENT SECTION
STA.6+10 TO STA.7+50
SCALE: 1"=5'



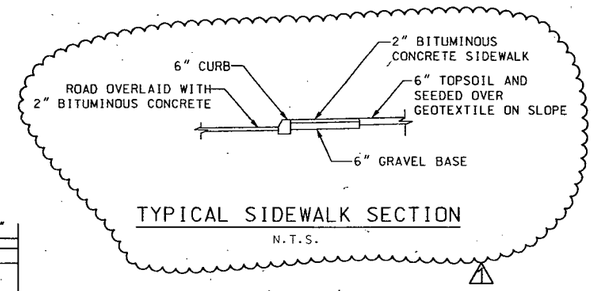
TYPICAL REVETMENT SECTION
STA.5+10 TO STA.6+10
SCALE: 1"=5'



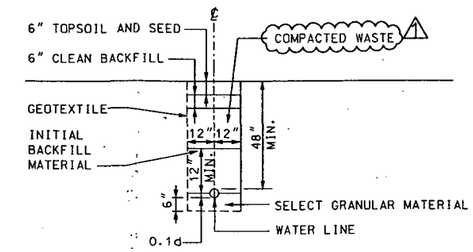
PAVEMENT TRANSITION
STA.6+39
N.T.S.



PAVEMENT TRANSITION
SOUTH END OF SHORE ROAD
N.T.S.

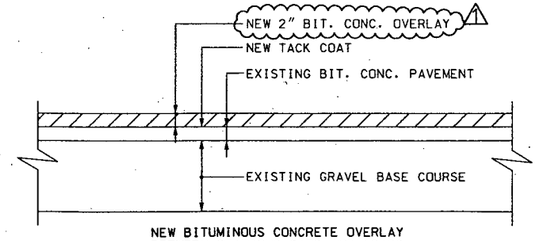


TYPICAL SIDEWALK SECTION
N.T.S.

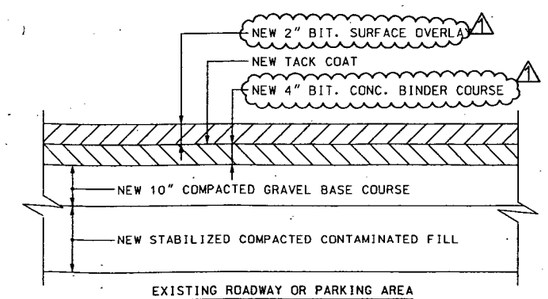


NOTE: d=inner diameter of the pipe.

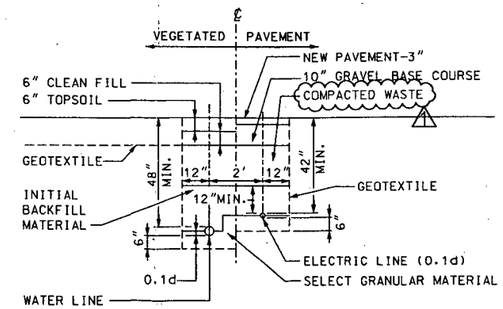
TYPICAL WATER UTILITY TRENCH
N.T.S.



NEW BITUMINOUS CONCRETE OVERLAY
BETWEEN STATIONS 6+39 AND 12+80

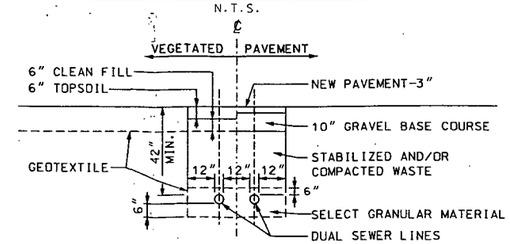


INTERFACE BETWEEN EXISTING
ROAD/PARKING AND FILL MATERIAL
BETWEEN STATIONS 0+50 AND 5+50
N.T.S.



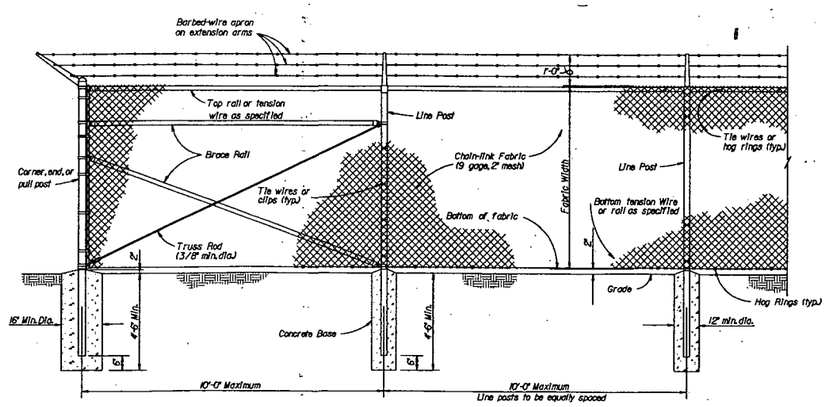
NOTE: d=inner diameter of the pipe.

TYPICAL ELECTRIC/WATER
UTILITY TRENCH
N.T.S.



TYPICAL SEWER UTILITY TRENCH
N.T.S.

GRAPHIC SCALE
1" = 5' 5' 0 5' 10'



CHAIN-LINK FENCE DETAIL
N.T.S.

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR AS-BUILTS	10/19/01	

Symbol	Description	Date	Appr.

Designed by: Dave Kelley/James Doucette
Drawn by: Bob Farrar/S.W. Kelley
Reviewed by:
Submitted by:
Ch. Geotechnical Engrg. Sect.
Date: 2000
Design file no: BHBC01.DGN
Drawing code: EPX-3
File name:
Plot date:
Plot scale: 1" = 5'
Rev.

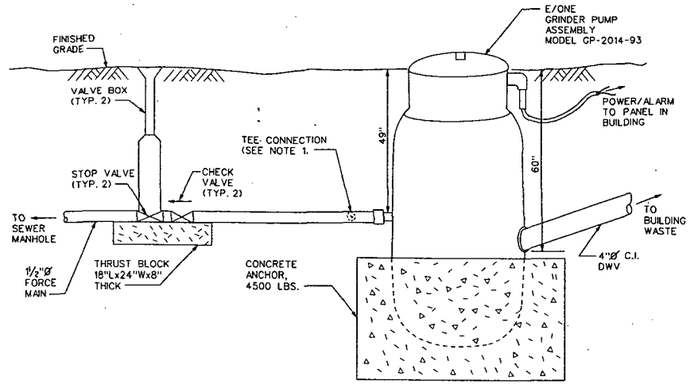
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

ENVIRONMENTAL PROTECTION AGENCY
REGION I
BOSTON, MASSACHUSETTS

INTERIM NON TIME CRITICAL REMOVAL ACTION
(NTCRA) - SHORE ROAD, STRATFORD, CT

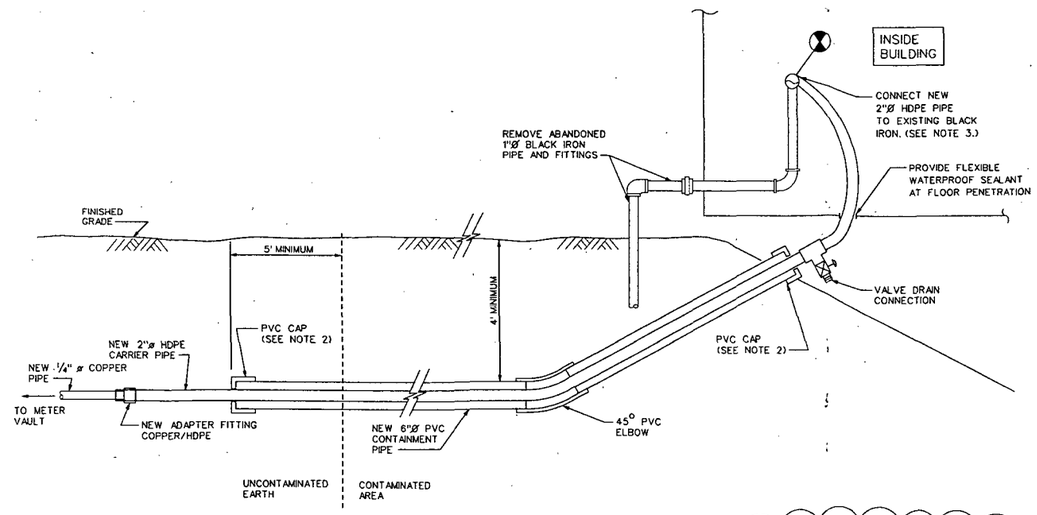
MISCELLANEOUS DETAILS

Reference number:
C-5
Sheet 6 of 8



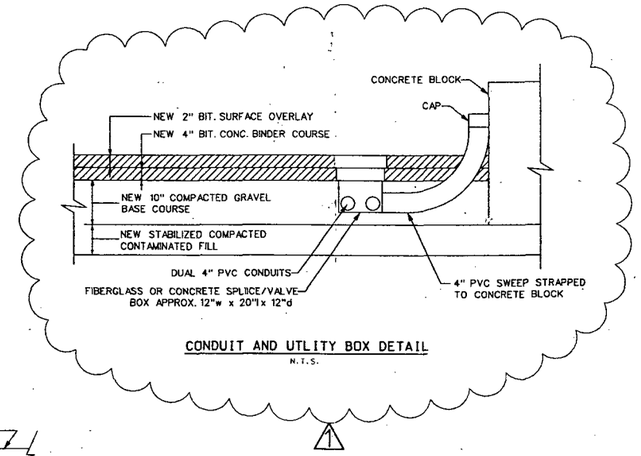
GRINDER PUMP BASIN AND STOP VALVE DETAIL

N.T.S.



DETAIL, WATER PIPE

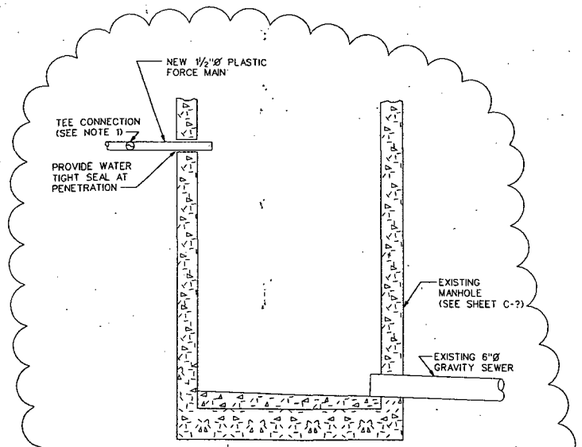
N.T.S.



CONDUIT AND UTLITY BOX DETAIL

N.T.S.

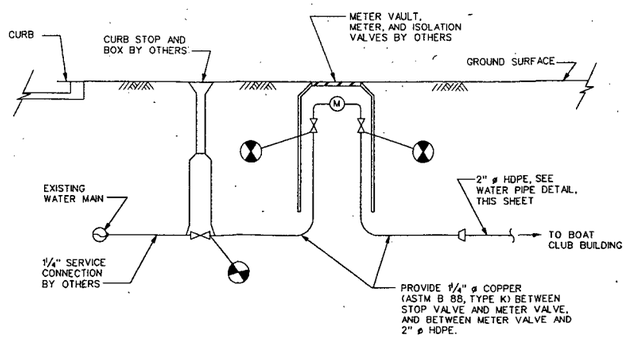
1



DETAIL, SEWER FORCE MAIN TERMINATION

N.T.S.

1



DETAIL, WATER SERVICE CONNECTION AND METER VAULT

N.T.S.

NOTES:

1. PROVIDE TWO 1-½" DIAMETER FORCE MAINS. SECONDARY FORCE MAIN SHALL TEE OFF OF PRIMARY FORCE MAIN IMMEDIATELY AFTER CONNECTION WITH GRINDER PUMP BASIN AND IMMEDIATELY BEFORE SEWER MANHOLE PENETRATION. SECONDARY FORCE MAIN SHALL BE PROVIDED WITH SEPERATE CHECK AND SHUTOFF VALVE ASSEMBLY AS SHOWN IN GRINDER PUMP BASIN DETAIL. RUN BOTH FORCE MAINS IN THE SAME TRENCH. AFTER COMPLETION OF TESTING AS DESCRIBED IN TECHNICAL SPECIFICATIONS, SHUT OFF VALVE ON SECONDARY FORCE MAIN SHALL BE LEFT CLOSED. SHUT OFF VALVE ON PRIMARY FORCE MAIN SHALL BE LEFT OPEN.

2. DRILL PVC CAPS AS REQUIRED TO ACCOMODATE HDPE PIPE. PROVIDE FITTINGS AND/OR SEALANT TO MAKE CAP PENETRATIONS WATER TIGHT.

3. CONNECT NEW HDPE WATER PIPE TO EXISTING IRON WATER PIPE INSIDE BUILDING. SUGGESTED LOCATION FOR CONNECTION IS THE APPROX. 5 FOOT LONG HORIZONTAL SECTION BETWEEN WHERE THE IRON PIPE ENTERS BUILDING, AND WHERE IT PENETRATES THE INTERIOR WALL. (THIS WOULD ALLOW IRON PIPE TO PROVIDE SUPPORT FOR THE EXISTING BACKWATER VALVE AND THE NEW HDPE PIPING.) PROVIDE SPECIAL TRANSITION FITTINGS AS NEEDED TO JOIN THE TWO PIPE SIZES AND MATERIALS. REMOVE ABONDONED IRON PIPE.

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR AS-BUILTS	10/18/01	

Designed by: DOUGLAS CARNELSON
Drawn by: ED WILSS/ USA GREENE
Reviewed by:
Submitted by:
Chief, General Engrg Sect
Date: APRIL 2000
Rev. 0
Design file no. bbcm1.dgn
Drawing code:
File name:
Plot date:
Plot scale:

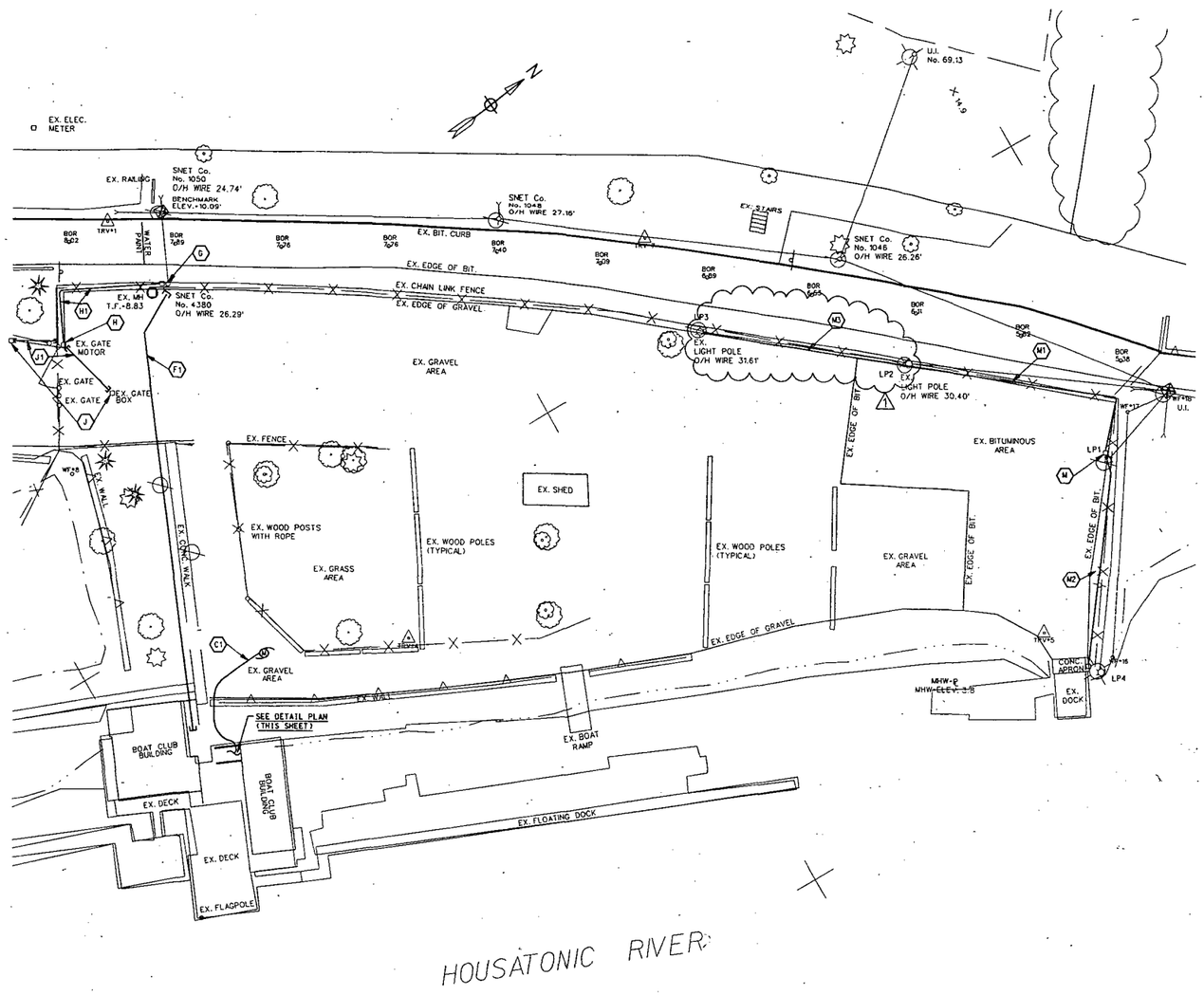
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

INTERIM NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD STRATFORD, CT

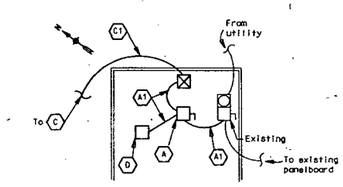
CRITICAL NON TIME CRITICAL REMOVAL ACTION (NTCRA) - SHORE ROAD, STRATFORD, CT

WATER AND SEWER LINE DETAILS

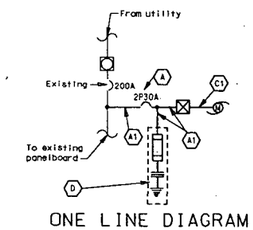
Reference number:
M-1
Sheet 7 of 8



SITE PLAN
SCALE: 1"=30'



DETAIL PLAN
NOT TO SCALE



ONE LINE DIAGRAM
NOT TO SCALE

SPECIFIC NOTES

NEW WORK

- A — Grinder Pump Disconnecting Means
- A1 — ¾", 4 #10
- C1 — Grinder Pump Wiring
- D — TVSS Unit
- F1 — Service Duct, 4" only

REMOVAL & REINSTALLATION WORK

- G — Loadcenter
- H — Gate Operator
- H1 — Operator Wiring, 2", 4-#10
- J — Operator Control Station
- J1 — Station Wiring, 2" only
- M — Panelboard
- M1 — Lighting & Power Wiring, 2", 5-#12
- M2 — Lighting & Power Wiring, 2", 7-#12, 2-#10
- M3 — Lighting & Power, 2" only per EPA/Corps 5-23-00

LEGEND

- Specific notes
- Existing utility meter and socket
- Disconnecting means
- Circuit breaker
- Grinder pump controller (B)
- Grinder pump connection (C)
- Fuse
- TVSS
- Ground
- Circuit
- Enclosure
- Capped end of circuit
- Wiring continues

GRAPHIC SCALE

1"=30' — 30' 0 30' 60'

US Army Corps of Engineers
New England District

Symbol	Description	Date	Appr.
1	ISSUED FOR AC-BIDS	10/19/01	

Date: MARCH, 2000
Rev:
Design file no.
Nace/Logn
Drawing code:
File name:
File version:
Plot scale:
Plot date:

Designed by: TOM AYAU
Drawn by: ED WILLS
Reviewed by:
Submitted by:
Chief, General Engrg Sect

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS

ENVIRONMENTAL PROTECTION AGENCY
REGION I
BOSTON, MASSACHUSETTS

INTERIM NON TIME CRITICAL REMOVAL ACTION (INTCRA) - SHORE ROAD, STRATFORD, CT

ELECTRICAL PLANS, DIAGRAM, NOTES AND LEGEND

Reference number:
E-1
Sheet 8 of 8

STRUCTURAL NOTES

1. ALL WORK TO CONFORM TO REQUIREMENTS OF ALL PUBLICATIONS AND NOTES LISTED UNDER DESIGN BASIS.
2. ARCHITECTURAL DRAWINGS, MECHANICAL DRAWINGS AND ALL OTHER DRAWINGS, AS REQUIRED, SHALL BE USED IN CONJUNCTION WITH STRUCTURAL DRAWINGS TO DEVELOP DETAILS AND DIMENSIONS FOR SHOP DRAWINGS, FABRICATION, ERECTION AND CONSTRUCTION.
3. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND ALL DIMENSIONS IN FIELD PRIOR TO START OF CONSTRUCTION AND PROTECT AND MAINTAIN ALL EXISTING CONSTRUCTION AND ITS CONTENTS IN FULL.
4. SEE MANUFACTURER'S INSTRUCTIONS FOR MOUNTING AND SECURING, MECHANICAL EQUIPMENT.
5. CONTRACTOR SHALL MAINTAIN A SET OF LATEST REVIEWED SHOP DRAWINGS ON JOB SITE.
6. ALL SECTIONS, DETAILS, NOTES, DIMENSIONS AND CONDITIONS ARE APPLICABLE AT ANY OTHER LOCATION WHERE CONDITIONS AND DETAILS ARE SIMILAR, BUT ARE NOT SPECIFICALLY NOTED AS SUCH, OR ARE NOT SHOWN.
7. ALL FOOTINGS TO BEAR ON NATURAL UNDISTURBED SOIL, BED ROCK OR COMPACTED FILL HAVING MINIMUM BEARING CAPACITY AS INDICATED IN DESIGN BASIS.
8. BOTTOMS OF ALL EXTERIOR FOOTINGS TO BE MINIMUM OF 3' - 6" BELOW FINISHED GRADE, UNLESS OTHERWISE NOTED.
9. MAXIMUM SLOPE FOR BOTTOM OF FOOTINGS TO BE 1 VERTICAL TO 2 HORIZONTAL.
10. PLACE CONCRETE FOUNDATION WALLS IN ALTERNATE SECTIONS NOT EXCEEDING 60 FEET IN LENGTH (30 FEET FROM ANY CORNER), ALLOWING 48 HOURS TO ELAPSE BETWEEN PLACEMENT. Delete Requirement per TED Dowbor's RFI & Cafs.
11. UNLESS OTHERWISE SHOWN, LOCATE REINFORCING BARS (OR WWF REINFORCING) WITH FOLLOWING CLEAR DIMENSION TO FACE OF CONCRETE.
    - A. CONCRETE ON GROUND: 3" CLEAR.
    - B. EXTERIOR EXPOSED SURFACES OR FORMED SURFACES AGAINST EARTH: 2" CLEAR.
    - C. SLABS ON GRADE: 1 1/2" CLEAR FROM TOP OF SLAB.
    - D. INTERIOR SURFACES - SLABS AND WALLS: 3/4" CLEAR.
12. PLACEMENT OF REAR COMPACTED FILL SHALL BE UNDER SUPERVISION OF APPROVED TESTING LABORATORY. CONCRETE SLABS OR FOOTINGS SHALL NOT BE PLACED UNTIL FILL HAS BEEN CHECKED IN PLACE AND ACCEPTED BY TESTING LABORATORY.
13. LAP ALL BAR REINFORCING 30 DIAMETERS, INCLUDING CORNER BARS FOR WALL REINFORCING (UNLESS SHOWN TO BE MORE). STAGGER SPLICES IN HORIZONTAL WALL REINFORCING.
14. ALL AROUND OPENINGS IN CONCRETE SLABS AND WALLS, ADD 2 - #5, EACH FACE, EXTENDING 2' - 0" BEYOND EACH SIDE OF OPENING.
15. BACKFILLING SHALL PROCEED TO EQUAL HEIGHTS ON BOTH SIDES OF FOUNDATION WALLS, PIERS, GRADE BEAMS, TO PREVENT MOVEMENT DUE TO UNBALANCED EARTH PRESSURE. WHERE EARTH IS ON ONE SIDE OF WALL ONLY, BACKFILLING AND COMPACTION SHALL NOT START UNTIL FLOOR SLABS OR ADEQUATE BRACING IS PROVIDED FOR LATERAL SUPPORT AT TOP AND BOTTOM OF WALL.
16. FLOOR CONSTRUCTION: 5" CONCRETE SLAB WITH 6X6-W2.0 X W2.0 WELDED WIRE FABRIC ON 2" SAND OVER COMPACTED GRAVEL.
17. FOR DOORWAY OPENING LOCATIONS SEE ARCHITECTURAL DRAWINGS.
18. PROVIDE SLEEVES IN FOUNDATION WALL FOR M/E UTILITIES. COORDINATE LOCATIONS WITH MECHANICAL CONTRACTOR. PIPE SLEEVES SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE.

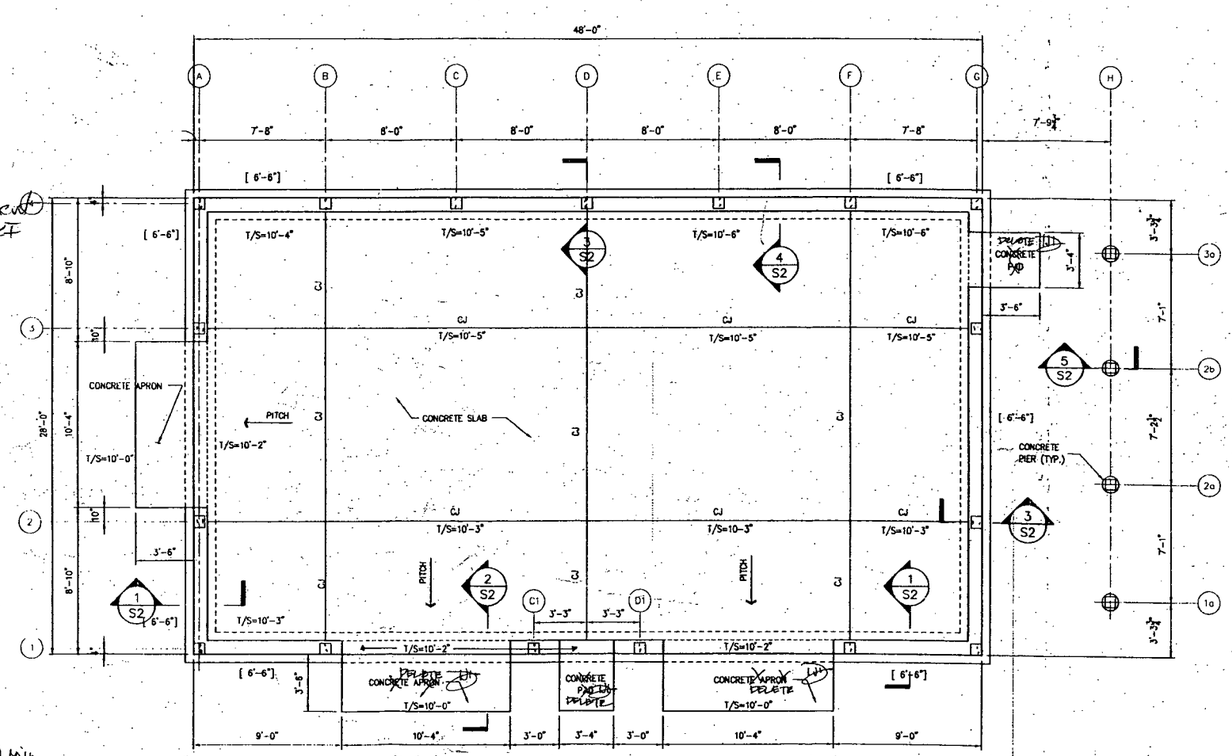
DESIGN BASIS

- A. 1996 BOCA/NATIONAL BUILDING CODE, 1998 ACCUMULATIVE SUPPLEMENT AND CONNECTICUT SUPPLEMENT.
- B. AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS" FOR REINFORCED CONCRETE" (ACI 318-89). 2500 PSI (Footings) & 3500 PSI (Floor slab) min
- C. ALLOWABLE SOIL BEARING PRESSURES BASED ON SOIL BORINGS COMPLETED BY PENN DRILLING ON APRIL 6, 1994 FOR RAYMARK-SHORE ROAD EE/CA.
- D. FOUNDATION BEARING CAPACITY - 1 KIP PER SQUARE FOOT.
- E. ALL REINFORCEMENT BARS TO BE ASTM A615, GRADE 60.
- F. BUILDING SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM LOADS:
  1. SNOW LOAD: Pg = 30 PSF; I = 1.0
  2. LATERAL LOADS (1996 BOCA AND 1998 SUPPLEMENT)
     - a. Effective Peak Velocity: Av = .11
     - b. Soil Profile Coefficient: S = 1.0
     - c. Seismic Performance Category: C
     - d. Seismic Hazard Group: I
     - e. Wind Velocity: 85 MPH
     - f. Importance Factor: 1.08
  3. BUILDING CLASSIFICATION: GROUP S-1

CJ DENOTES CONSTRUCTION OR CONTROL JOINT

[0'-0"] DENOTES BOTTOM OF FOOTING ELEVATION

1/S DENOTES TOP OF SLAB ELEVATION



1/S1 FOUNDATION PLAN

SCALE: 1/4"=1'-0"

0 2 4 8 12

PROJECT NORTH

STATE OF CONNECTICUT C.W. MARSHALL #12220 LICENSED PROFESSIONAL ENGINEER 4/21/2010

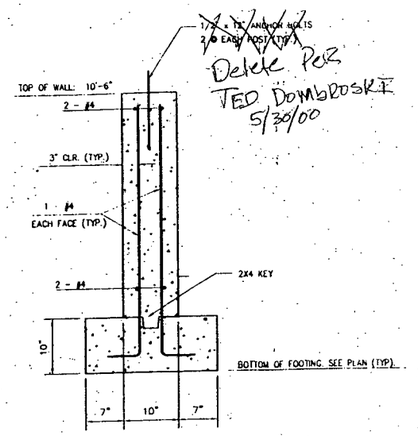
Revisions		
No.	Date	Description
		ISSUED FOR AS-BUILTS

Project Title: BOAT SHED
HOUSATONIC BOAT CLUB
SHORE ROAD
STRATFORD, CONNECTICUT 06615

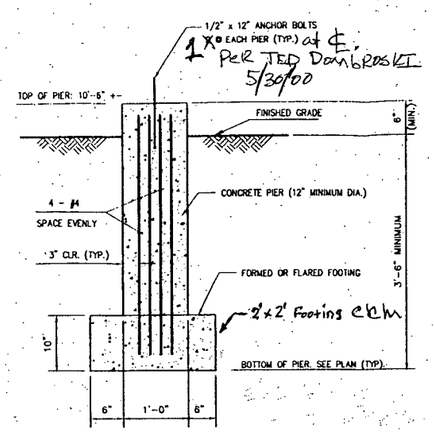
Westcott and Mapes, Inc.
Consulting Engineers and Architects since 1916
142 Temple Street
New Haven, CT 06510
TEL (203) 789-1260 • FAX (203) 789-8261

Drawing Title: FOUNDATION PLAN AND NOTES

Designed	JRR	Date	04-12-00
Drawn	JRR	Scale	AS NOTED
Approved			
Project No.	20149.00	Sheet No.	S1
File Name			



3 / S2 SECTION
SCALE: 1"=1'-0"



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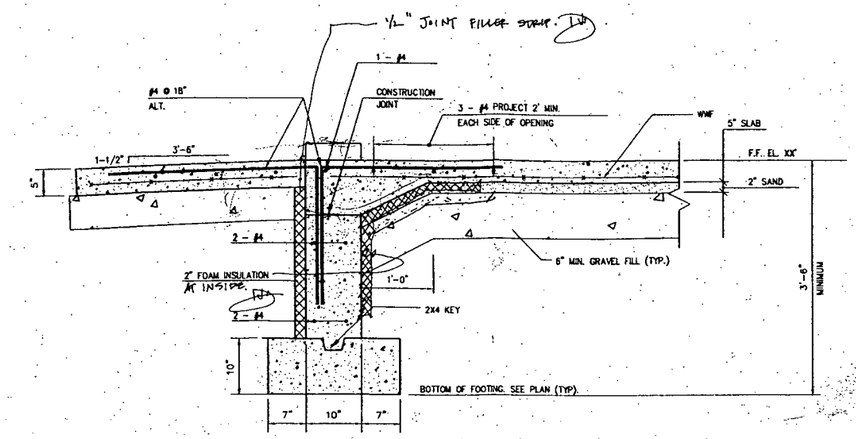

2 / S2 SECTION
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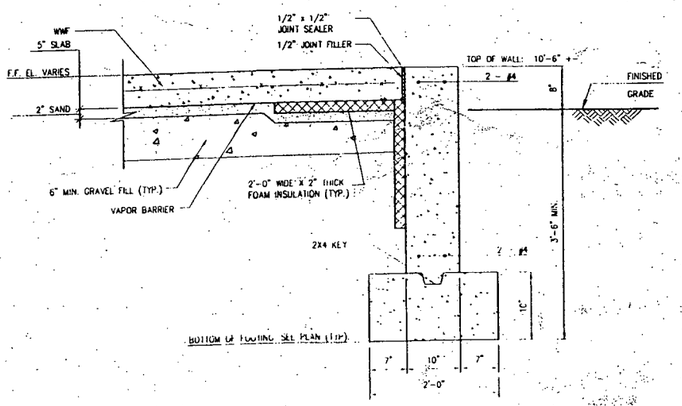

4 / S2 SECTION
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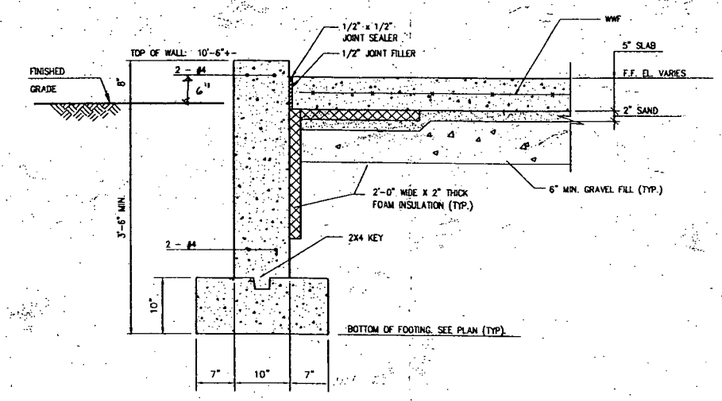


1 / S2 SECTION
SCALE: 1"=1'-0"

STATE OF CONNECTICUT
CARL MARSCELLA
#13324
LICENSED
PROFESSIONAL ENGINEER
4/24/2000

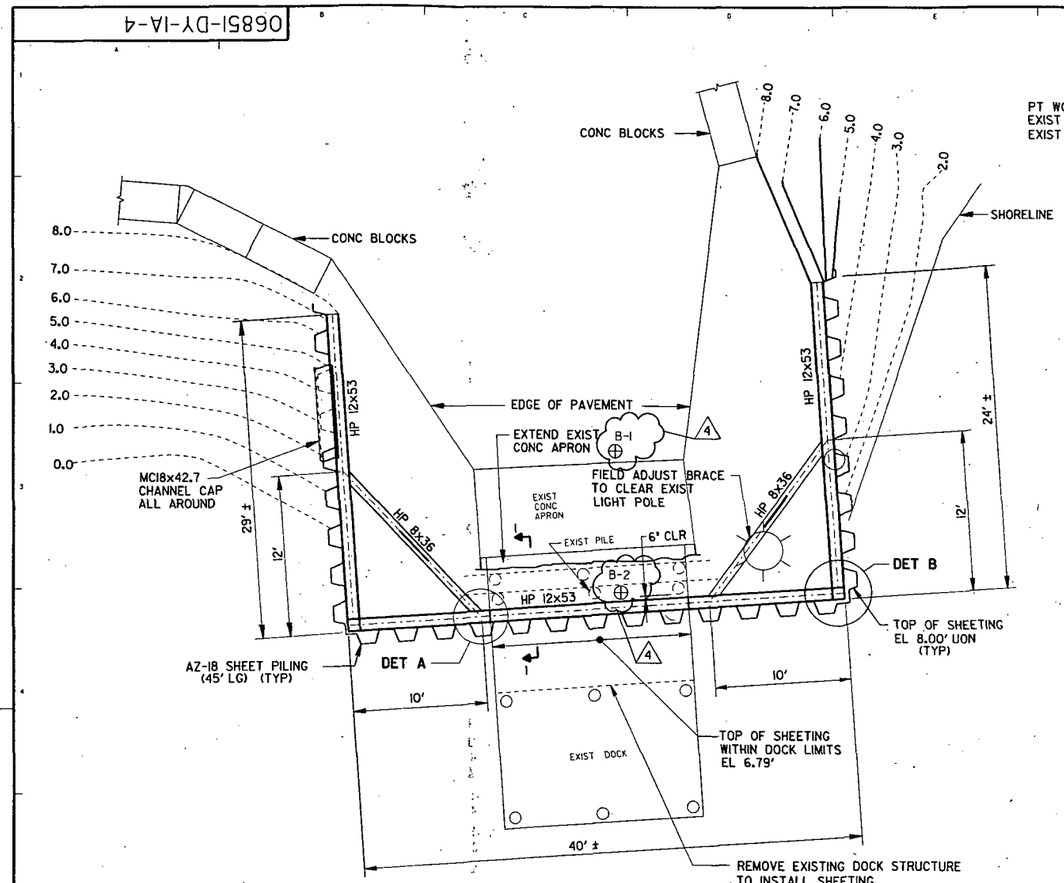
Revisions		
No.	Date	Description
		ISSUED FOR AS-BUILTS

Project Title
BOAT SHED
HOUSATONIC BOAT CLUB
SHORE ROAD
STRATFORD, CONNECTICUT 06615

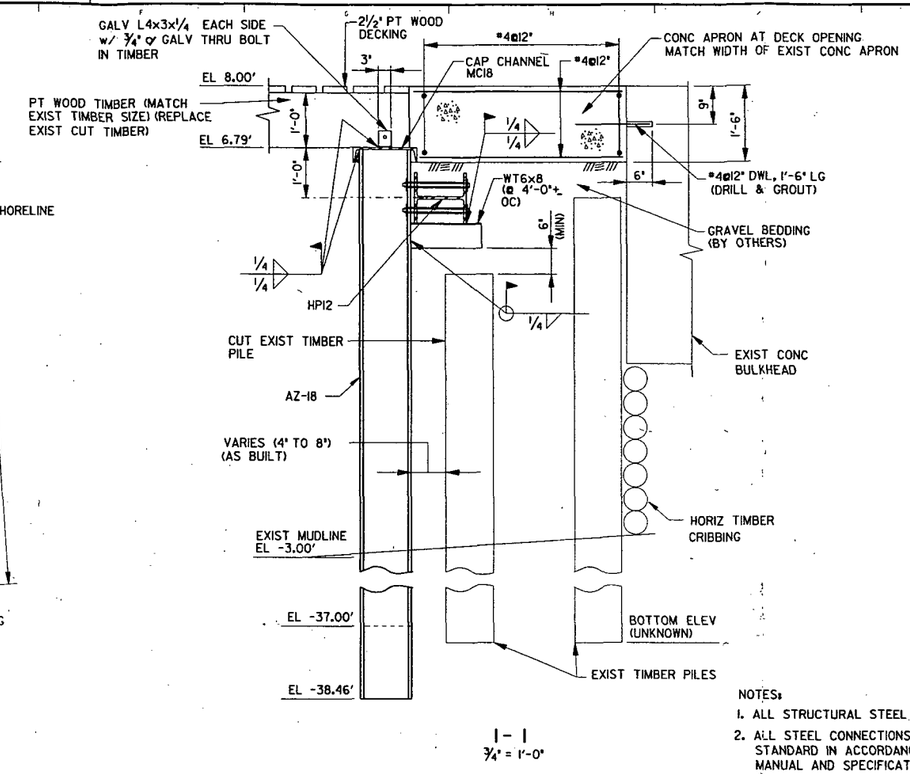
Westcott and Mapes, Inc.
Consulting Engineers and Architects since 1916.
142 Temple Street
New Haven, CT 06510
TEL (203) 789-1260 • FAX (203) 789-8261

Drawing Title
SECTIONS AND DETAILS

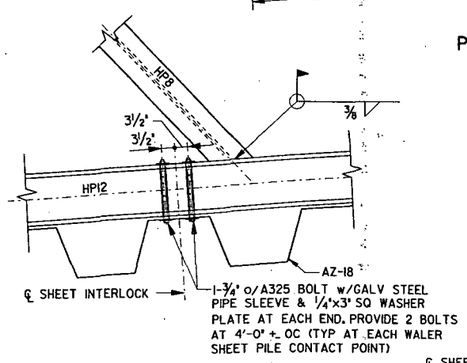
Designed	JRR	Date	04-12-00
Drawn	JRR	Scale	AS NOTED
Approved			
Project No.	20149.00	Sheet No	S2
File Name	20149-S2		



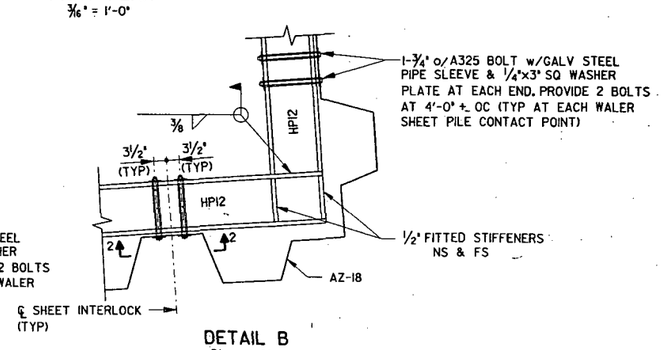
PART PLAN
3/16" = 1'-0"



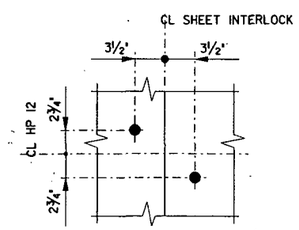
1 - 1
3/4" = 1'-0"



DETAIL A
3/4" = 1'-0"



DETAIL B
3/4" = 1'-0"



2 - 2
NTS

NOTES:

1. ALL STRUCTURAL STEEL SHALL BE NEW ASTM A-36.
2. ALL STEEL CONNECTIONS AND DETAILS SHALL BE STANDARD IN ACCORDANCE WITH THE LATEST AISC MANUAL AND SPECIFICATIONS UNLESS OTHERWISE SPECIFIED.
3. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.
4. REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
5. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED BY THE STEEL FABRICATOR AND/OR ERECTING CONTRACTOR.
6. WELD SIZES NOT INDICATED SHALL BE MINIMUM SIZE IN ACCORDANCE WITH AWS D1.1 UOS OR AS REQUIRED BY DESIGN.
7. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY BRACING AND SUPPORT DURING ERECTION.
8. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1. ELECTRODES SHALL BE E70XX.
9. STEEL SHEET PILING SHALL BE NEW SECTIONS CONFORMING TO THE REQUIREMENTS OF ASTM A328.
10. ALL STEEL SHALL BE COATED WITH A COAL TAR EPOXY. THIS COATING WILL BE APPLIED TO THE UPPER 15' OF SHEET PILING SECTIONS.

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 4 SOIL BORING

ISSUE	DESCRIPTION	CHECKED	APPR	DATE
4	ADDED SOIL BORING LOCATIONS @ DOCK			
3	REVISED PART PLAN, SECTION 1-1 & NOTES. NO CHANGES - ISSUED FOR AS-BUILTS			
2	ISSUED FOR CONSTRUCTION. MODIFIED DETAILS A & B. ADDED SECT 2-2.			
1	ORIGINAL ISSUE. ISSUED FOR MATERIAL PROCUREMENT ONLY.		AWD	6/8/00
			AWD	5/24/00

MODEL | ARCH | CIVIL | CONC | STL | L & P | INST | M.D. | P.S. | S.A. | FAC | ELEC | LTG | MAT'L

SHEET PILING CONFIGURATION
RAYMARK - SHORE ROAD
STRATFORD, CT

U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

DRAWING NUMBER 06851-DY-IA-4

DESIGNED BY T. CHANG | DRAWN BY J.E. HORAN | DSGN CHK'D BY A.W. DENNIS | CHK'D BY A.W. DENNIS

AREAS | LEVELS | WORK PKG | PCT

RESP ENGR. L. LePAGE | SUPV.

ISSUE | HALF-SIZE | APP. CARD

MODEL: USAYLDGN

APPENDIX E

SELECTED CONSTRUCTION PHOTOS

(Electronic Photos are included on the CD)