



**BOUCHARD B120 RELEASE
SHORELINE SEGMENT SUMMARY**

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GeoInsight Project Number 3871-002

SEGMENT IDENTIFICATION: **W1E-03**

SEGMENT NAME: **Strawberry Point West**

SEGMENT LOCATION: **Mattapoisett, Massachusetts** (*Map attached*)

MAXIMUM DEGREE OF INITIAL OILING: Moderate (Oiling Score: 2.28)

SEGMENT INSPECTION STATUS: Did not pass IRAC inspection on 08/25/2003, and further treatment was considered to be feasible. Passed MCP IRA inspection on 11/05/2003.

SITE-SPECIFIC INFORMATION

PHYSICAL CHARACTERISTICS:

Primary Shoreline Type/ Geology:

- 1C: Mixed sand and gravel (pebble to boulder) and rip rap groins (jetties).

Secondary Shoreline Type/ Geology:

- 1B: Less utilized, semi-public and private sand beaches; and
- 1F: Salt marshes.

Hydrogeology:

- Pine Island Pond is located in the center of the segment and Buzzards Bay to the south. The northern portion of the segment is primarily saltwater wetlands.

Bedrock Geology:

- Bedrock underlying this segment is identified as undivided granite, gneiss, and schist (Zen, 1983).

ENVIRONMENTAL SENSITIVE RECEPTORS (Identified within 500 feet of segment):

Aquifer: None at segment.

Protected Open Space: At segment.

Public Ground Water Supply Wells: None at segment.

Public Surface Water Supply Wells: None at segment.

Areas of Critical Environmental Concern (ACEC): None at segment.

Vernal Pools: None at segment.

Priority Habitats of Rare Species: At segment and adjacent to segment: Buzzards Bay aquatic environment.

Estimated Habitats of Rare Wildlife: At segment and adjacent to segment: Buzzards Bay aquatic environment.

Floodplains: On-site: 100-year floodplain.

HUMAN SENSITIVE RECEPTORS (Identified within 500 feet of segment):

Segment Use: Private and semi-public shoreline. Residential dwellings are located within 500 feet of the segment. Most of this segment is not directly accessible via roadway.

Frequency of Use: Low, due to relative inaccessibility of segment.

SUMMARY OF INSPECTION ACTIVITIES

WRF INSPECTIONS

(Wildlife Field Reconnaissance - Shoreline or On-Water Observations; Bird Transect Study.)

WRF inspections pertaining to this segment were not conducted.

NRDA FIELD ACTIVITIES SUMMARY

(Natural Resource Damage Assessment)

Note: Includes Shoreline Cleanup Assessment Team (SCAT) inspections and activities. SCAT forms were completed by field inspection teams working under the direction of Unified Command.

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
05/15/2003	An area of surface oil (approximately 5 by 20 feet and less than 1 centimeter thick) was observed on the northern portion of Pine Island Pond. An area of surface oil (approximately 6 by 3,500 feet), including tarballs and tar patties, was observed and had 11% to 50% surface oil coverage.

IRAC INSPECTIONS

(Unified Command Immediate Response Action Completion inspections and activities.)

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
08/25/2003	Cleanup crew was on-site during the inspection. A moderate amount of oil was observed on rocks and between rocks and sediment. The oil was left untouched and natural attenuation was recommended, as the segment is relatively inaccessible and not heavily traveled. Segment did not meet IRAC endpoints and further treatment was considered to be feasible.

MCP FIELD ACTIVITIES SUMMARY

(Massachusetts Contingency Plan inspections and activities under the direction of the Licensed Site Professional-of-Record.)

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
11/05/2003	Site reconnaissance: Marsh area inspected. A few tar patties were found and removed.
01/21/2004	Phase I characterization activities: Due to winter conditions and ice cover, evidence of oil was not observed. Intertidal sediment samples W1E03-UIT-01, W1E03-UIT-02, and W1E03-UIT-03 were collected from three sample locations centered around N41°38.91' W70°46.494', N41°38.863' W70°46.442', and N41°38.944' W70°46.088', respectively) in the upper intertidal zone. Each sample consisted of three grab samples collected approximately 30 feet apart and parallel to the shoreline, were composited in a laboratory, and analyzed for EPH fractions and PAH by 8270C/SIM analysis.
04/13/2004	Site reconnaissance: Several areas with tacky splatter and tar mats (pavement) mixed in sand and cobbles (ranging approximately between 6 inches by 2 feet to 5 by 30 feet) were observed. The areas of pavement were located along the middle intertidal zone of the rocky shoreline of the segment. The pavement extends into marsh grass in some areas, specifically at the east point of the segment. Approximately 45 pounds of residual oil was removed and the location of the other pavement areas was recorded. Additional cleanup activities were warranted.
05/05/2004	Cleanup activities: Approximately 250 pounds of oil mixed with sediment was removed from the rocky shoreline. Additional cleanup activities were warranted.
05/12/2004	Cleanup activities: Approximately 450 pounds of oil mixed with sediment was removed

	primarily from middle intertidal zone on the rocky shoreline portion of the segment. The removal of pavement from marsh grass (top inch of the impacted sediment) was limited to assess the damage to the marsh. Additional cleanup activities were warranted.
06/03/2004	Cleanup assessment: Follow-up cleanup inspection with MADEP. Additional cleanup activities were warranted.
06/18/2004	Cleanup activities: Areas of concern were identified during prior cleanups - cleanup focused along rocky shoreline middle to upper intertidal zones. Area of tacky pavement located in several areas (ranging from approximately 1 to 20 square feet and 2 to 6 inches thick). In general, the oil was mixed with sand and was located between and under cobbles and boulders. Approximately 650 pounds of oil mixed with sediment and cobbles was removed from two areas.
08/23/2004	Trace splatter was observed in the vicinity of the mouth of Pine Island Pond. Splatter (each approximately 1 inch in diameter and in clusters in approximately a 5 foot area) was observed. A weathered tar patty (approximately 8 by 6 inches) was removed near N41°38.904' W70°46.447'.
10/27/2004	Pre-cleanup evaluation with MADEP: Patches of pavement starting at N41°38.493' W70°46.143' and westward were observed. The pavement is mixed with sand between cobbles and within marsh grass along a fairly consistent band in the middle intertidal zone.
11/23/2004	Site reconnaissance: Areas of concern flagged for upcoming cleanup activities.
12/06/2004	Cleanup activities: Pavement was removed in four previously designated areas using wire brushes, spades, and shovels surrounding N41°38.486' W70°46.138', N41°38.476' W70°46.137', N41°38.466' W70°46.133', and N41°38.463' W70°46.139'. Snare was deployed near N41°38.486' W70°46.138' and N41°38.476' W70°46.137' and boom was deployed near N41°38.486' W70°46.138' to contain sheen produced by disturbing the pavement. A total of 43 bags, weighing approximately 20 lbs each, were filled with oil-impacted sand and cobbles.
12/07/2004	Cleanup activities: Pavement was removed in six areas using wire brushes, spades, and shovels between N41°38.909' W70°46.473' and N41°38.641' W70°46.349'. Snare was deployed near N41°38.641' W70°46.349'. A total of 52 bags, weighing approximately 20 pounds each, were filled with oil-impacted sediment and cobbles.
12/08/2004	Cleanup activities: Residual oil was removed, as well as the oil-absorbent material deployed on 12/07/04. A total of approximately 100 bags of mixed sediment and cobbles with oil collected during cleanup activities since 12/06/04 were transported to a roll-off at Mattapoisett Town Beach for proper disposal.
12/29/2004	Post-cleanup inspection: Areas where cleanup activities conducted between 12/06/04 to 12/08/04 were inspected. One tarball (approximately 3 by 8 inches) located in the upper intertidal zone near N41°38.460' W70°46.209' was removed. Five tar patties (approximately 2 to 4 inches in diameter) were removed between N41°38.523' W70°46.228' and N41°38.641' W70°46.349'. Additional evidence of residual oil was not observed. Oil absorbent material deployed on 12/07/04 did not need to be replaced, and was removed.
04/20/2005	Site reconnaissance: Pavement between cobbles and boulders was observed. (1) A patch of pavement (approximately 4 inches in diameter) were removed in the lower intertidal zone at N41°38.462' W70°46.138'; (2) A patch of pavement (approximately 8 inches in diameter) embedded in peat was observed in the middle intertidal zone at N41°38.491' W70°46.191'; (3) A patch of pavement (approximately 2 by 6 inches) was observed embedded in peat and grass between large cobbles ; and (4) A patch of pavement (approximately 1 by 1.5 inches) and a 1.5 was observed. The pavement was weathered and did not easily come off to the touch, but had a tacky center when broken apart.
05/10/2005	Site reconnaissance: Trace dried splatter (approximately 1 splatter mark every 25 to 50 yards) was observed on cobbles.
07/20/2005	Site reconnaissance: Two pieces of residual splatter (up to approximately 1 inch in diameter) were observed in a marsh area.

08/31/2005 Phase II characterization activities: Sediment sampling and visual inspection of marsh area. Trace splatter (typically dime- to quarter-size) was observed at Strawberry Point surrounding N41°38.465' W70°46.187'. Trace sporadic splatter (ranging dime-size to approximately 3 inches in diameter) was observed along the middle intertidal zone on cobbles and boulders on the rocky shoreline west of Strawberry Point. The splatter was weathered and hardened and did not easily come off to the touch. Subtidal sediment samples (W1E03-P2-SUB-01 and W1E03-P2-SUB-02) were collected from two locations adjacent to the segment. The grab samples at each location were collected from within an approximate 15 foot radius of N41°38.672' W70°46.420' and N41°38.515' W70°46.270'. The grab samples were composited in a laboratory and analyzed for EPH fractions and PAH by 8270C/SIM analysis. The salt marsh appeared to be healthy.

Notes:

1. GeoInsight did not receive IRA citizen calls pertaining to this segment.
2. EPH = Extractable Petroleum Hydrocarbons.
3. PAH = Polynuclear Aromatic Hydrocarbons.
4. SIM = Selected Ion Monitoring.
5. MADEP = Massachusetts Department of Environmental Cleanup.

TABLE 1
SAMPLE SUMMARY
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: WIE-03
Strawberry Point West, Mattapoisett

Sample ID	Date Collected	Matrix	Analysis	Laboratory	Sampling Program	Sample Location Coordinates		Sample Location Description	Comments
						Latitude	Longitude		
W1E-03-UIT-01	01/21/04	Sediment	PAH EPH	GAI	MCP-Phase I Site Assessment	N41°38.910'	W70°46.494'	Upper Intertidal Zone	Composite Samples
W1E-03-UIT-02						N41°38.863'	W70°46.442'		
W1E-03-UIT-03						N41°38.943'	W70°46.088'		
W1E03-P2-SUB-01	8/31/2005	Sediment	PAH EPH	GAI	MCP-Phase II Site Assessment	N41°38.671'	W70°46.420'	Subtidal Sediment	Composite Samples
W1E03-P2-SUB-02						N41°38.513'	W70°46.267'		

NOTES:

1. GAI: Groundwater Analytical, Inc.

TABLE 2
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: WIE-03
Strawberry Point West, Mattapoissett

Analyte	WIE03-UIT-01	WIE03-UIT-02	WIE03-UIT-03	WIE-03-P2-SUB-01	WIE-03-P2-SUB-02	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Upper Intertidal Sediment	Upper Intertidal Sediment	Upper Intertidal Sediment	Subtidal Sediment	Subtidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	1/21/2004	1/21/2004	1/21/2004	8/31/2005	8/31/2005				
EPH									
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(36)	ND(33)	ND(30)	ND(35)	ND(33)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(36)	ND(33)	ND(30)	ND(35)	ND(33)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(36)	ND(33)	ND(30)	ND(35)	ND(33)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C									
Naphthalene	0.013	0.011	0.008 j	ND(0.012)	0.010j	4	40	500	0.160
2-Methylnaphthalene	0.010 j	0008 j	0.006 j	ND(0.012)	ND(0.011)	4	500	500	0.070
Acenaphthylene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	100	100	100	0.044
Acenaphthene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	20	1,000	1,000	0.016
Fluorene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	400	1,000	1,000	0.019
Phenanthrene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	0.010j	700	1,000	100	0.240
Anthracene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	1,000	1,000	1,000	0.085
Fluoranthene	ND(0.012)	ND(0.011)	0.007 j	ND(0.012)	ND(0.011)	1,000	1,000	1,000	0.600
Pyrene	ND(0.012)	ND(0.011)	0.007 j	ND(0.012)	0.006j	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	7	7	7	0.261
Chrysene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	7	7	7	0.384
Benzo(b)fluoranthene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	7	7	7	NA
Benzo(k)fluoranthene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	70	70	70	NA
Benzo(a)pyrene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	7	7	7	NA
Dibenzo(a,h)anthracene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND(0.012)	ND(0.011)	ND(0.010)	ND(0.012)	ND(0.011)	1,000	1,000	1,000	NA

NOTES:

1. Results in mg/Kg (milligrams per kilogram).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits (PQL) noted in parentheses.
4. PAH by GC/MS-SIM: Polynuclear Aromatic Hydrocarbon analysis by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring.
5. j: Estimated concentration/ detected below standard laboratory reporting limits.
6. ER-L: Effects Range Low (Long and Morgan 1991).
7. NA: Not Applicable.
8. Bold values exceed laboratory PQL.
9. MCP: Massachusetts Contingency Plan.



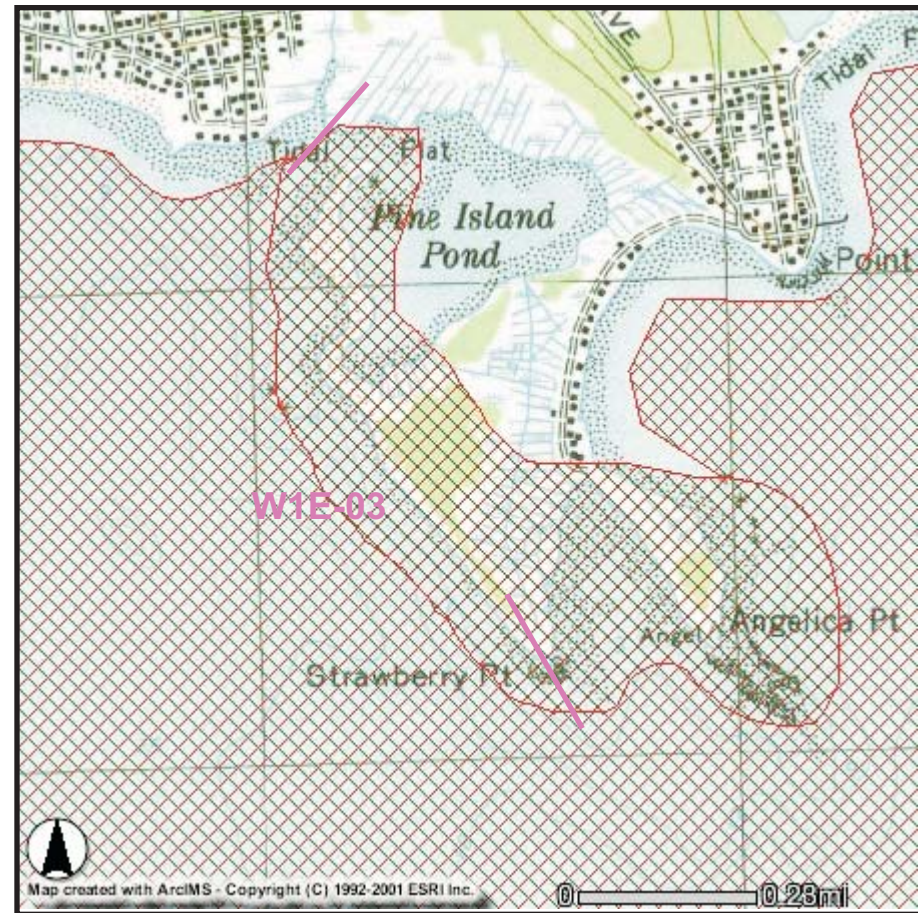
0 250 500 1,000 Feet



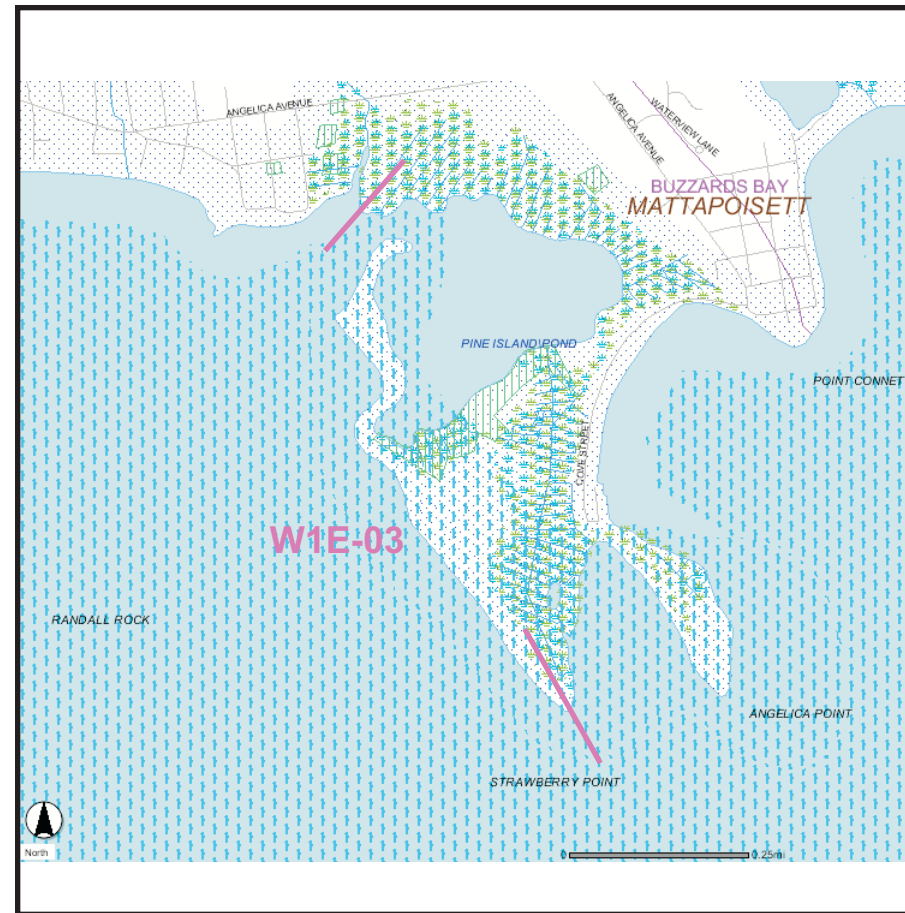
E N T R I X

W1E-03
Strawberry Point West
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA

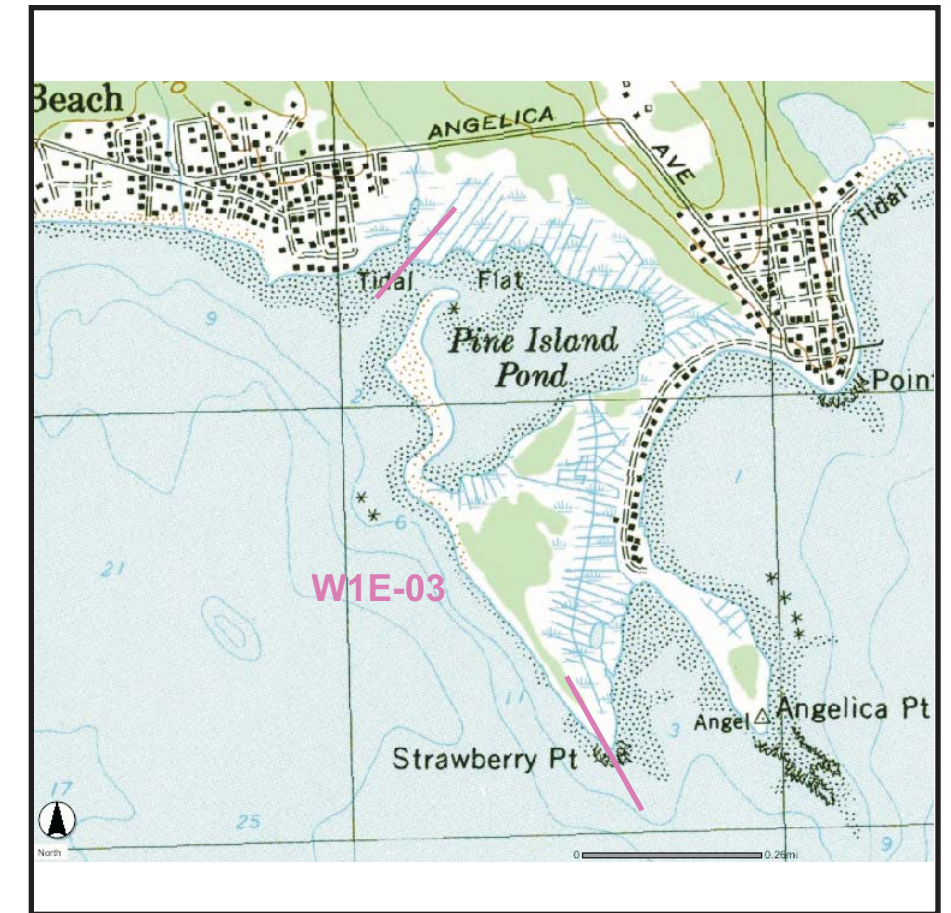
NATURAL HERITAGE AND ENDANGERED SPECIES MAP





21E PRIORITY RESOURCE MAP

































TOPOGRAPHIC MAP




LEGEND

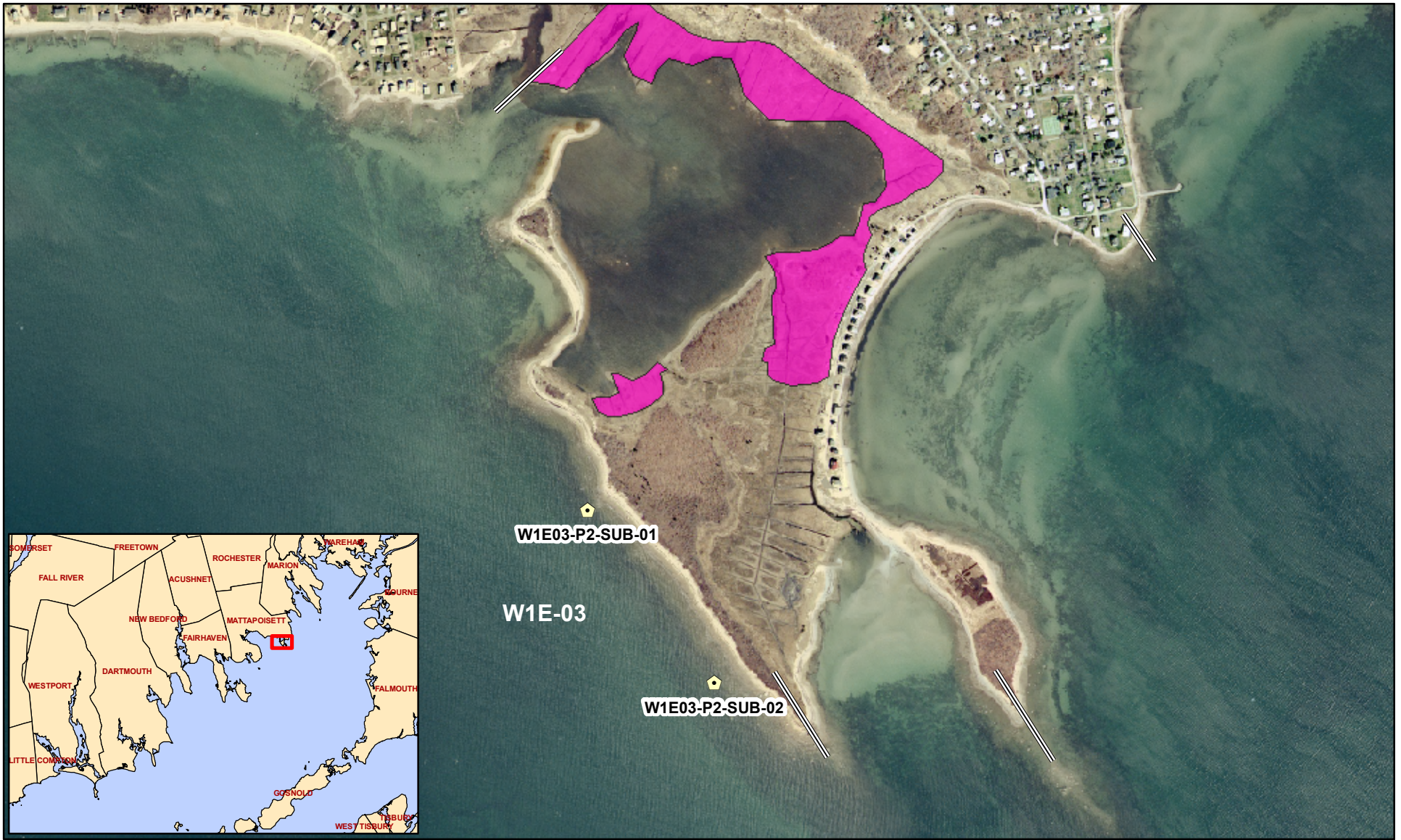
-  NHESP 2005 MA PRIORITY HABITATS FOR STATE-PROTECTED RARE SPECIES
-  NHESP 2005 MA ESTIMATED HABITATS OF RARE WILDLIFE

DEP MCP 21e Map Legend





-  Zone IIs
 -  IWPAs
 -  Zone A
 -  Sole Source Aquifers
 -  Solid Waste Sites
 -  Protected Openspace
 -  ACECs
 -  NHESP Estimated Habitat of Rare Wildlife in Wetland Areas
 -  Certified Vernal Pools 2003 NHESP
 -  Subbasins
 -  Mass Major Basins
 -  DEP Region
 -  Town Arcs
 - County Boundaries
-  HIGH YIELD
 -  MEDIUM YIELD
 -  HIGH YIELD
 -  MEDIUM YIELD
 -  100 YEAR FLOODPLAIN
-  WATER
 -  RESERVOIR
 -  WETLANDS
 -  SALT WATER WETLANDS
 -  FLATS SHOALS
 -  PERENNIAL
 -  INTERMITTENT
 -  SHORELINE
 -  MAN MADE SHORE
 -  DAM
 -  AQUEDUCT
-  LIMITED ACCESS HIGHWAY
 -  MULTILANE HWY. NOT LIMITED ACCESS
 -  OTHER NUMBERED HWY
 -  MAJOR ROAD - COLLECTOR
 -  MINOR STREET OR ROAD, RAMP
 -  TRACK
 -  TRAIL
 -  PIPELINE
 -  POWERLINE
 -  TRAIN



		PROJECT:		
		B120 OIL SPILL		
TITLE:		LOCATION:		
		STRAWBERRY POINT WEST BUZZARDS BAY, MA		
PHASE II SUPPORTING MAPS				
DESIGNED:	DRAWN:	CHECKED:	APPROVED:	FIGURE #:
LAC	JKB	KDT	MJW	WIE-03
SCALE:	DATE:	FILE:	PROJECT #:	
AS SHOWN	01/25/06	3871WIE-03	3871-002	



Legend

-  Intertidal Sampling Location
-  Marsh Sampling Location
-  Subtidal Sampling Location
-  Visual Inspection of Marsh Area

0 700 1,400 2,800 Feet



ENTRIX

**Phase II Sampling
W1E-03
Strawberry Point West
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA**



Map Document: (J:\Arxiview7079607 - BuzzardsBaySpill\Geoinsight\Report 1-05\Shoreline Segment Summary rev RR 6-05-06.mxd)

Trench Location

- 11/2004
- 10/2004
- 09/2004
- 08/2004
- 07/2004
- 06/2004
- 04/2004
- 03/2004
- 01/2004
- 12/2003
- 11/2003
- 10/2003
- 09/2003

- ✱ Nearshore Subtidal Sediment Sampling Location 2004
- ✱ Deep Subtidal Sediment Sampling Location 2004
- ✱ Subtidal Sediment Sampling Location 2003
- ▲ Qualitative Shellfish Surveys 2004
- ◆ Marsh Sampling Location 2004
- ◆ Marsh Core Sampling Location 2004
- Water Sampling Location 2004
- Water Sampling Location 2003
- ★ Intertidal Sediment Sampling Location 2003
- ★ Intertidal Sediment Sampling Location 2004

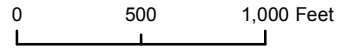
- ✱ Shellfish Sampling Location
- ▲ Chain Drag Location 2003
- ▲ Chain Drag Location 2004
- Lobster Pot Sampling Location 2003
- Absorbent Pad Sampling Location 2003
- Dive Sites
- Wetlands
- Nests
- Vernal Pool
- NHESP 2003 Priority Habitats for State-Protected Rare Species

OILING

- NO DATA
- CLEAN
- VERY LIGHT
- LIGHT
- MEDIUM
- HEAVY

IRAC ESI

- Public-Private Sand Beach (1A/1B)
- Mixed Sand and Gravel (1C)
- Marsh (1F)
- Rocky Shoreline (1E)
- Riprap, Groin, Jetty (1D)
- Visual Inspection of Marsh Area



ENTRIX

W1E-03
Strawberry Point West,
Mattapoissett
Comprehensive Activities
Bouchar B No. 120 Oil Spill
Buzzards Bay, MA

Segment: W1E-03 Strawberry Point West
Mattapoisett, MA
Phase II Sampling: August 31, 2005

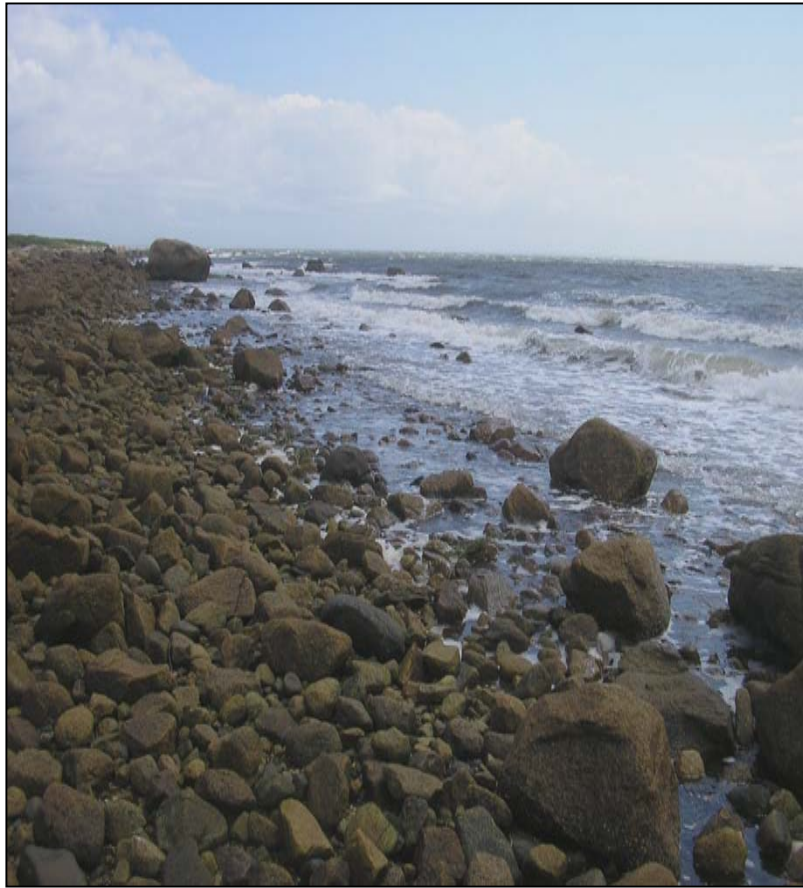


Photo 1: Overview of shoreline type.



Photo 2: Overview of shoreline type.