



**BOUCHARD B120 RELEASE  
SHORELINE SEGMENT SUMMARY**

5 Lan Drive, Suite 200  
Westford, Massachusetts 01886  
Tel. (978) 692-1114  
Fax (978) 692-1115

GeoInsight Project Number 3871-002

SEGMENT IDENTIFICATION: **W1E-02**

SEGMENT NAME: **Strawberry Cove**

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

MAXIMUM DEGREE OF INITIAL OILING: Light (Oiling Score: 1.46)

SEGMENT INSPECTION STATUS: Did not pass IRAC inspection on 09/02/2003, further treatment was not considered to be feasible.

**SITE-SPECIFIC INFORMATION**

**PHYSICAL CHARACTERISTICS:**

Primary Shoreline Type/ Geology:

- 1F: Salt marshes.

Secondary Shoreline Type/ Geology:

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

Hydrogeology:

- Nye's Cove is located to the north and Buzzards Bay to the south. The majority of the segment is 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: None 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: At segment: 100-year floodplain.

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

Segment Use: Private and semi-public beaches. Residential dwellings are located within 500 feet of the segment. A portion of segment is accessible via roadway.

Frequency of Use: Presumably seasonal and year round residential use.

## 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
04/30/2003	Inspected conducted between N41°38.425' W70°45.049' and N41°38.670' W70°46.109'. The Fire Marshal received a report of oil from a citizen and joined the inspection team. Evidence of oil was not observed.
05/02/2003	Several tarballs and small tar patties were observed in the upper intertidal zone. Oil-absorbent material (snare) was set across channel of creek near tidal marsh area. Evidence of oil in the snare was not observed. Two areas of discontinuous oil (approximately 2 by 1,200 feet and 2 by 300 feet) including tarballs and tar patties were observed with approximately 1% to 5% surface oil distribution.

### **IRAC INSPECTIONS**

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

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
08/25/2003	Splatter was observed on west side of Angelica Point. Cleanup crew was on-site during the inspection. Additional cleanup activities were warranted.
09/02/2003	Several tarmats were found and removed. Segment did not meet IRAC endpoints but further treatment was not 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
05/12/2004	Site reconnaissance: Pavement (tar mats) along fringing marsh were observed. One area of pavement (approximately 4 by 6 feet) was removed. Pavement remained on fringing marsh at Strawberry Cove.
06/03/2004	Site reconnaissance: Discontinuous area of pavement (approximately 6 by 30 feet) was observed on the fringing marsh toward the center of Strawberry Cove. Some splatter (approximately 4 to 8 inches in diameter) was observed in middle and upper intertidal zones in sand and cobble along the eastern side of Angelica Point. Splatter was scraped and removed where feasible. Two tar patties (approximately 2 and 4 inches in diameter) were removed from marsh grass in upper intertidal zone on the eastern side of Strawberry Cove.
10/27/2004	Site reconnaissance: Inspection of the western portion of Strawberry Cove as part of a pre-cleanup evaluation for segment W1E-03 (Strawberry Point West). On the eastern side of Angelica Point, tar patties (approximately 2 to 3 inches in diameter) were removed from sand and peat in the fringing marsh grass in the middle intertidal zone (N41°38.533' W70°45.892'). Small patches of pavement (approximately 1 to 3 inches in diameter) were also removed at

	N41°38.544' W70°45.969'. Splatter (dime-size to three-inches in diameter) was scraped off of marsh grass and on cobbles in the middle intertidal zone on the western side of Angelica Point at (N 41°38.503' W70°45.930', N41°38.510' W70°45.953', and N41°38.544' W70°45.969').
04/20/2005	Site reconnaissance: Inspection of the western portion of Strawberry Cove as part of a pre-cleanup evaluation for segment W1E-03 (Strawberry Point West). An area of pavement (approximately 5 by 10 feet) was removed from the middle to upper intertidal zone on fringing marsh. The pavement was weathered and did not easily come off to the touch, but had a tacky center when broken apart. Additional cleanup activities were warranted.
05/10/2005	Site reconnaissance: Splatter (approximately 1 to 2 inches in diameter within a 7 foot long area) was observed on fringing marsh.
05/18/2005	Cleanup activities: Scattered patches of pavement, primarily in the upper to middle intertidal zones (ranging 4 to 6 inches in diameter and 1 to 3 inches thick) were removed between N41°38.655' W70°46.109' and N41°38.635' W70°46.129'. The pavement was weathered and did not easily come off to the touch, but had a tacky center when broken apart. An area in the upper intertidal zone at N41°38.649' W70°46.122' had thick marsh grass growing through the pavement and therefore was not removed.
08/31/2005	Phase II characterization activities: Isolated areas of splatter (primarily dime-size to approximately 2 inches in diameter) were observed in the intertidal zone on cobbles at N41°38.510' W 70°46.177', N41°38.476' W70°46.169', N41°38.494' W70°45.914', N41°38.500' W70°45.932', and N41°38.566' W70°45.977'. The splatter was weathered and hardened and did not easily come off to the touch. One tarball (approximately 3 inches in diameter) and one wrack patty (approximately 5 inches in diameter) were found and removed from a sandy area at N41°38.634' W70°46.081' and from a cobble area at N41°38.521' W70°46.207'. Non-B120 tar-like pavement was found between cobbles at N41°38.596' W70°45.998', and was removed during the inspection. Marsh sediment samples (W1E02-P2-M-01 through W1E02-P2-M-05) were collected from five sample locations in the intertidal zone. The samples were compiled of three grab samples that were collected from within an approximate 15 foot radius of N41°38.544' W70°46.187', N41°38.591' W70°46.146', N41°38.639' W70°46.095', N41°38.608' W70°46.025', and N41°38.579' W70°45.986', respectively. Subtidal sediment samples (W1E02-P2-SUB-01 and W1E02-P2-SUB-02) were also collected adjacent to the segment with the same methodology, centered around N41°38.575' W70°41.460' and N41°38.579' W70°46.063'. The grab samples at each sample location were composited in a laboratory and analyzed for EPH fractions and PAH by 8270C/SIM analysis.

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.

**TABLE 1**  
**SAMPLE SUMMARY**  
**BUZZARDS BAY, MASSACHUSETTS**  
**SEGMENT: W1E-02**  
**Strawberry Cove**

Sample ID	Date Collected	Matrix	Analysis	Laboratory	Sampling Program	Sample Location Coordinates		Sample Location Description	Comments
						Latitude	Longitude		
W1E02-P2-M-01	8/31/2005	Sediment	EPH PAH	GAI	MCP-Phase II Site Assessment	N41°38.540'	W70°46.182'	Marsh Sediment	Composite Samples
DDD-P2-03						N41°38.540'	W70°46.182'		Composite Sample (Duplicate W1E02-P2-M-01)
W1E02-P2-M-02						N41°38.590'	W70°46.153'		Composite Samples
W1E02-P2-M-03						N41°38.640'	W70°46.093'		
W1E02-P2-M-04						N41°38.606'	W70°46.026'		
W1E02-P2-M-05						N41°38.581'	W70°46.984'		
W1E02-P2-SUB-01						N41°38.574'	W70°46.147'		
W1E02-P2-SUB-02						N41°38.584'	W70°46.067'	Subtidal Sediment	

NOTES:

1. GAI: Groundwater Analytical, Inc.

**TABLE 2**  
**SUMMARY OF ANALYTICAL RESULTS**  
**BUZZARDS BAY, MASSACHUSETTS**  
**SEGMENT: W1E-02**  
**Strawberry Cove**

Analyte	W1E02-P2-M-01	DDD-P2-03	W1E02-P2-M-02	W1E02-P2-M-03	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Marsh Sediment	Marsh Sediment	Marsh Sediment	Marsh Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	8/31/2005	8/31/2005	8/31/2005	8/31/2005				
<b>EPH</b>								
C <sub>9</sub> -C <sub>18</sub> Aliphatic Hydrocarbons	ND(660)	ND(77)	ND(33)	ND(35)	1,000	1,000	1,000	NA
C <sub>19</sub> -C <sub>36</sub> Aliphatic Hydrocarbons	ND(660)	ND(77)	ND(33)	ND(35)	2,500	2,500	2,500	NA
C <sub>11</sub> -C <sub>22</sub> Aromatic Hydrocarbons	ND(660)	ND(77)	ND(33)	ND(35)	200	800	800	NA
<b>PAH by GC/MS-SIM by method 8270C</b>								
Naphthalene	ND(0.220)	<b>0.015j</b>	ND(0.011)	ND(0.017)	4	40	500	0.160
2-Methylnaphthalene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	4	500	500	0.070
Acenaphthylene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	100	100	100	0.044
Acenaphthene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	20	1,000	1,000	0.016
Fluorene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	400	1,000	1,000	0.019
Phenanthrene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	700	1,000	100	0.240
Anthracene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	1,000	1,000	1,000	0.085
Fluoranthene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	1,000	1,000	1,000	0.600
Pyrene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	7	7	7	0.261
Chrysene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	7	7	7	0.384
Benzo(b)fluoranthene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	7	7	7	NA
Benzo(k)fluoranthene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	70	70	70	NA
Benzo(a)pyrene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	7	7	7	NA
Dibenzo(a,h)anthracene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND(0.220)	ND(0.026)	ND(0.011)	ND(0.017)	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.

**TABLE 2 (continued)**  
**SUMMARY OF ANALYTICAL RESULTS**  
**BUZZARDS BAY, MASSACHUSETTS**  
**SEGMENT: W1E-02**  
**Strawberry Cove**

Analyte	W1E02-P2-M-04	W1E02-P2-M-05	W1E02-P2-SUB-01	W1E02-P2-SUB-02	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Marsh Sediment	Marsh Sediment	Subtidal Sediment	Subtidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	8/31/2005	8/31/2005	8/31/2005	8/31/2005				
<b>EPH</b>								
C <sub>9</sub> -C <sub>18</sub> Aliphatic Hydrocarbons	ND(34)	ND(32)	ND(36)	ND(52)	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	NA
C <sub>19</sub> -C <sub>36</sub> Aliphatic Hydrocarbons	ND(34)	ND(32)	ND(36)	ND(52)	<b>2,500</b>	<b>2,500</b>	<b>2,500</b>	NA
C <sub>11</sub> -C <sub>22</sub> Aromatic Hydrocarbons	ND(34)	ND(32)	ND(36)	ND(52)	<b>200</b>	<b>800</b>	<b>800</b>	NA
<b>PAH by GC/MS-SIM by method 8270C</b>								
Naphthalene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>4</b>	<b>40</b>	<b>500</b>	<b>0.160</b>
2-Methylnaphthalene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>4</b>	<b>500</b>	<b>500</b>	<b>0.070</b>
Acenaphthylene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>100</b>	<b>100</b>	<b>100</b>	<b>0.044</b>
Acenaphthene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>20</b>	<b>1,000</b>	<b>1,000</b>	<b>0.016</b>
Fluorene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>400</b>	<b>1,000</b>	<b>1,000</b>	<b>0.019</b>
Phenanthrene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>700</b>	<b>1,000</b>	<b>100</b>	<b>0.240</b>
Anthracene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>0.085</b>
Fluoranthene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>0.600</b>
Pyrene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>0.665</b>
Benzo(a)anthracene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>7</b>	<b>7</b>	<b>7</b>	<b>0.261</b>
Chrysene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>7</b>	<b>7</b>	<b>7</b>	<b>0.384</b>
Benzo(b)fluoranthene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>7</b>	<b>7</b>	<b>7</b>	NA
Benzo(k)fluoranthene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>70</b>	<b>70</b>	<b>70</b>	NA
Benzo(a)pyrene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>2</b>	<b>2</b>	<b>2</b>	<b>0.430</b>
Indeno(1,2,3-c,d)pyrene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>7</b>	<b>7</b>	<b>7</b>	NA
Dibenzo(a,h)anthracene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.063</b>
Benzo(g,h,i)perylene	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.019)	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.





W1E-02

0 125 250 500 Feet

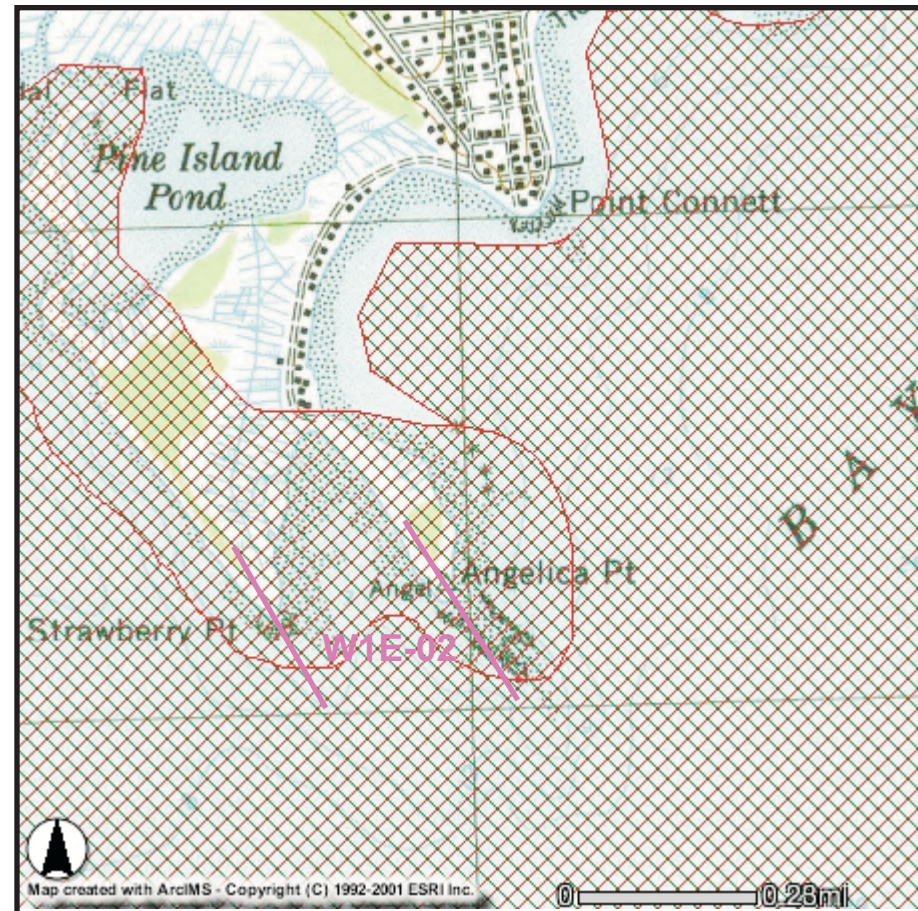


**E N T R I X**

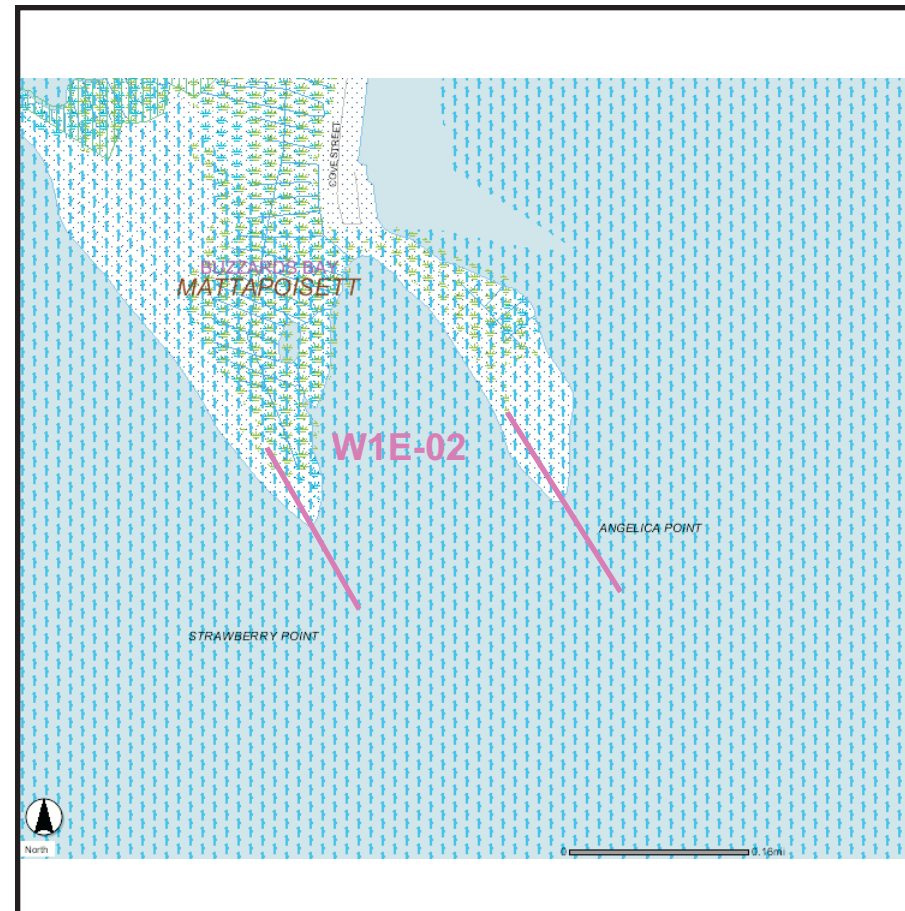
**W1E-02**  
**Strawberry Cove**  
**Bouchard B No. 120 Oil Spill**  
**Buzzards Bay, MA**



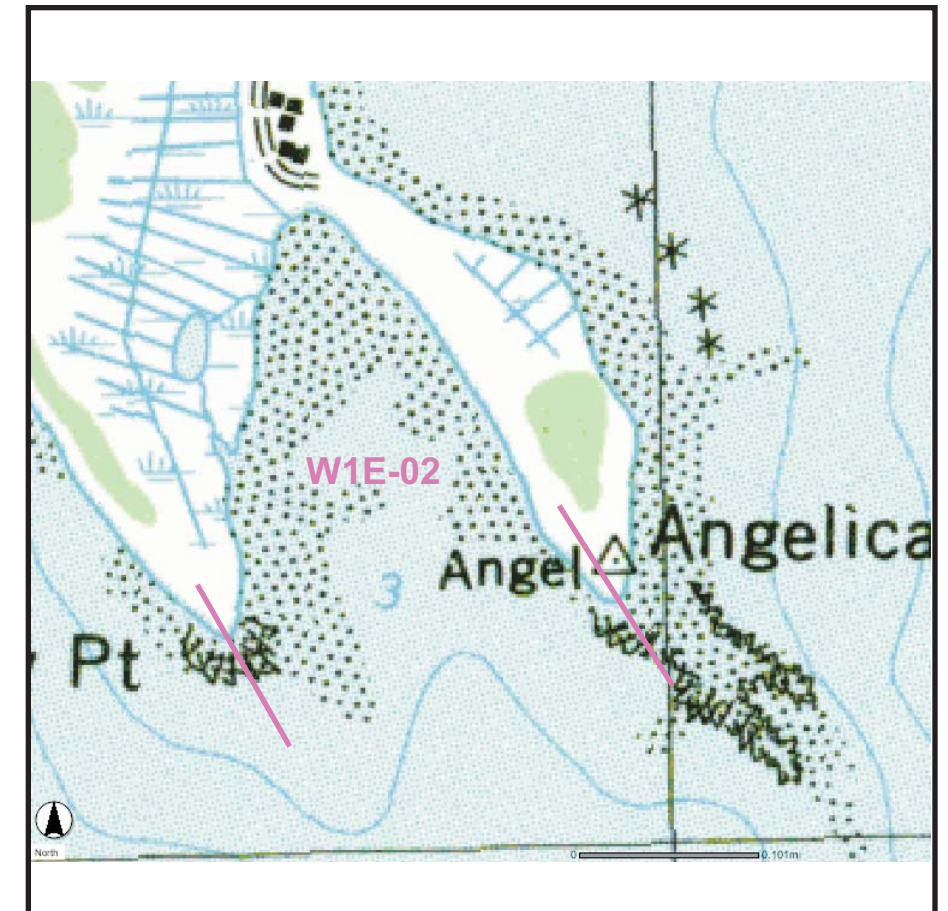
NATURAL HERITAGE AND ENDANGERED SPECIES MAP





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

- |  |   |  |   |
|--|---|--|---|
| <ul style="list-style-type: none"> <li> Zone IIs</li> <li> IWPAs</li> <li> Zone A</li> <li> Sole Source Aquifers</li> <li> Solid Waste Sites</li> <li> Protected Openspace</li> <li> ACECs</li> <li> NHESP Estimated Habitat of Rare Wildlife in Wetland Areas</li> <li> Certified Vernal Pools 2003 NHESP</li> <li> Subbasins</li> <li> Mass Major Basins</li> <li> DEP Region</li> <li> Town Arcs</li> <li> County Boundaries</li> </ul> | <ul style="list-style-type: none"> <li> HIGH YIELD</li> <li> MEDIUM YIELD</li> <li> Non Potential Drinking Water Source Area</li> <li> HIGH YIELD</li> <li> MEDIUM YIELD</li> <li> FEMA Floodplains</li> <li> 100-YEAR FLOODPLAIN</li> </ul> | <ul style="list-style-type: none"> <li> WATER</li> <li> RESERVOIR</li> <li> WETLANDS</li> <li> SALT WATER WETLANDS</li> <li> FLATS SHOALS</li> <li> PERENNIAL</li> <li> INTERMITTENT</li> <li> SHORELINE</li> <li> MAN MADE SHORE</li> <li> DAM</li> <li> AQUEDUCT</li> </ul> | <ul style="list-style-type: none"> <li> LIMITED ACCESS HIGHWAY</li> <li> MULTILANE HWY, NOT LIMITED ACCESS</li> <li> OTHER NUMBERED HWY</li> <li> MAJOR ROAD - COLLECTOR</li> <li> MINOR STREET OR ROAD, RAMP</li> <li> TRACK</li> <li> TRAIL</li> <li> PIPELINE</li> <li> POWERLINE</li> <li> TRAIN</li> </ul> |
|--|---|--|---|







		PROJECT:		
		B120 OIL SPILL		
TITLE:		LOCATION:		
		STRAWBERRY COVE BUZZARDS BAY, MA		
PHASE II SUPPORTING MAPS				
DESIGNED:	DRAWN:	CHECKED:	APPROVED:	FIGURE #:
LAC	JKB	KDT	MJW	WIE-02
SCALE:	DATE:	FILE:	PROJECT #:	
AS SHOWN	01/25/06	3871WIE-02	3871-002	

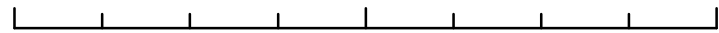




**Legend**

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

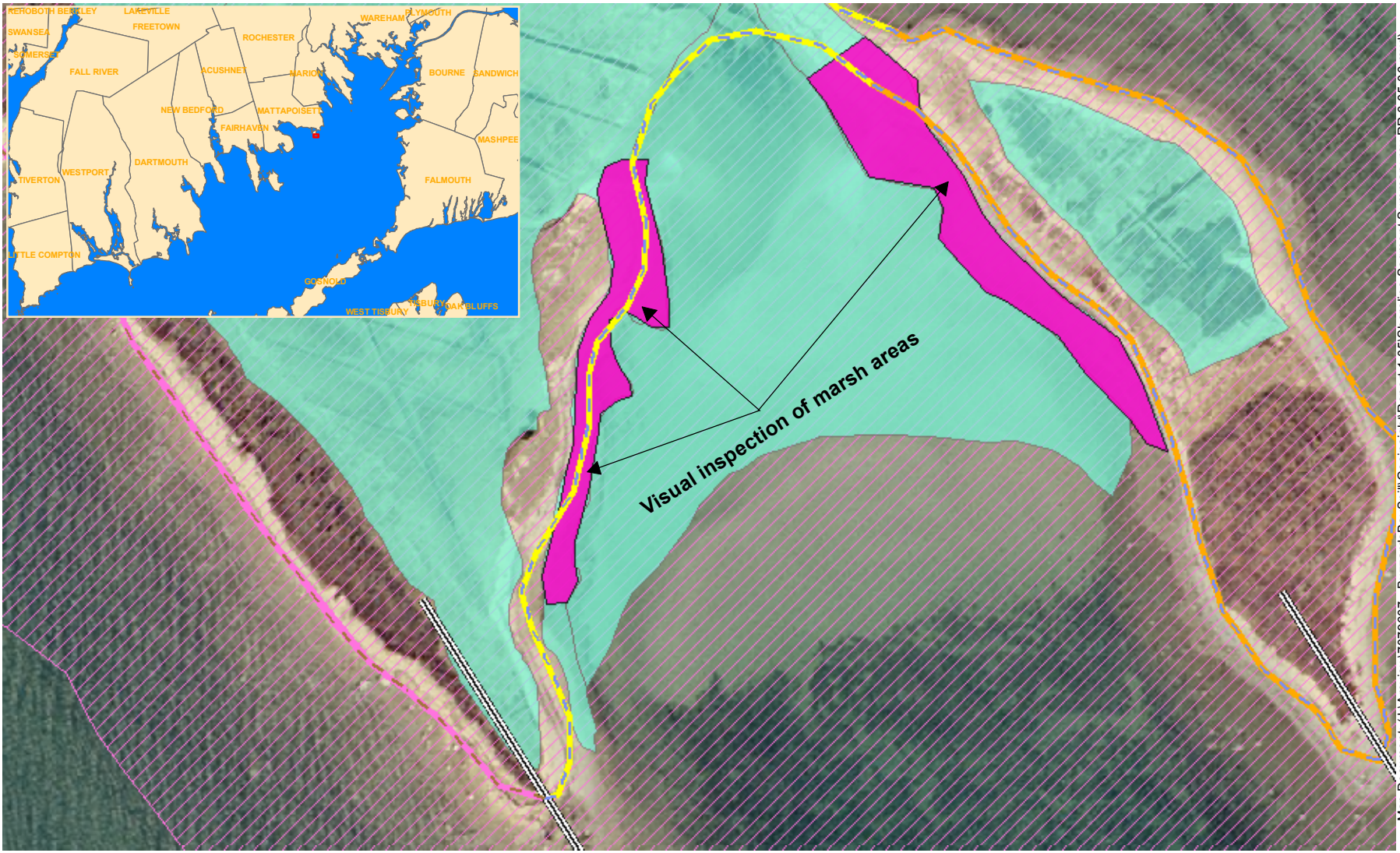
0 275 550 1,100 Feet



**ENTRIX**

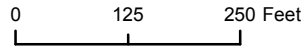
**Phase II Sampling  
W1E-02  
Strawberry Cove  
Bouchard B No. 120 Oil Spill  
Buzzards Bay, MA**





- 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



**E N T R I X**

**W1E-02**  
**Strawberry Cove, Mattapoisett**  
**Comprehensive Activities**  
**Bouchard B No. 120 Oil Spill**  
**Buzzards Bay, MA**



Segment: W1E-02 Strawberry Cove  
Mattapoisett, MA  
Phase II Sampling: August 31, 2005

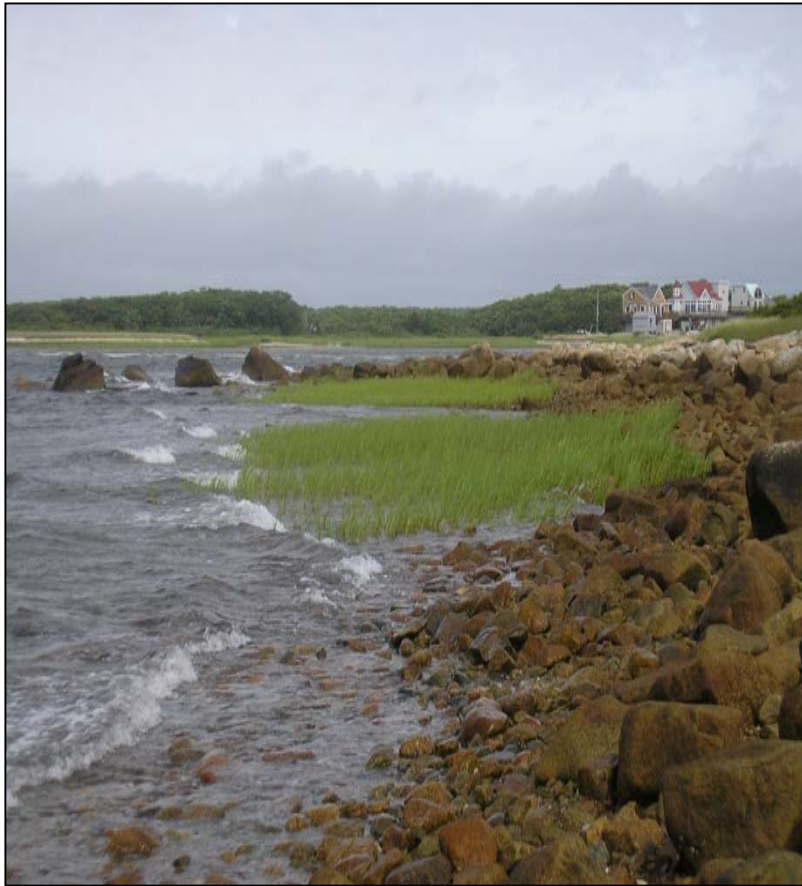


Photo 1: Overview of shoreline type.



Photo 2: Overview of shoreline type.



Segment: W1E-02 Strawberry Cove  
Mattapoisett, MA  
Phase II Sampling: August 31, 2005



Photo 3: Splatter observed on boulder.

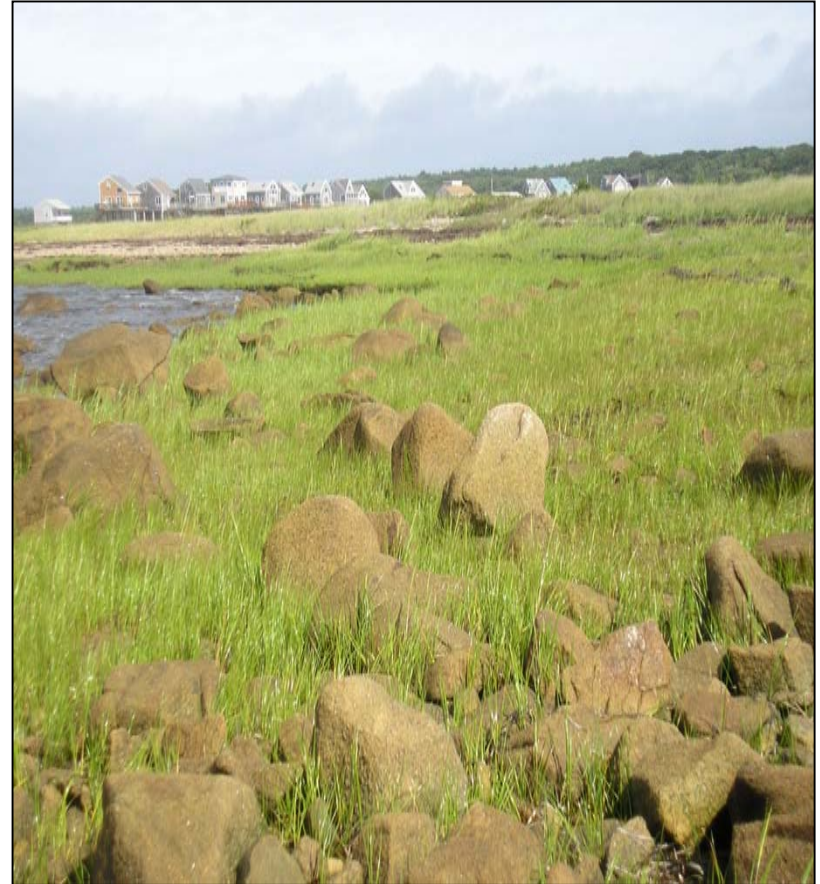


Photo 4: Marsh and rocky shoreline.