



**BOUCHARD B120 RELEASE
SHORELINE SEGMENT SUMMARY**

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GeoInsight Project Number 3871-002

SEGMENT IDENTIFICATION: **W1F-04**

SEGMENT NAME: **Brandt Island Cove**

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

MAXIMUM DEGREE OF INITIAL OILING: Heavy (Oiling Score: 2.19)

SEGMENT INSPECTION STATUS: Passed IRAC criteria endpoints on 08/22/2003.

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:

- The segment is located within Brandt Island Cove and Buzzards Bay is located to the south. The majority of the segment is salt marsh and saltwater wetlands.

Bedrock Geology:

- Bedrock underlying this segment is identified as "Alaskite" bedrock formation. This bedrock consists of mafic-poor gneissic granite commonly containing muscovite (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: Adjacent to segment: Buzzards Bay aquatic environment.

Estimated Habitats of Rare Wildlife: 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 marsh. Residential dwellings are located within 500 feet of the segment. A portion of the segment is accessible via roadway. Portions of the segment are not accessible by road, and are difficult to access.

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
05/08/2003	Trace oil coating (approximately less than 1% surface oil coverage) observed. Two small areas of oil (approximately 2 and 20 centimeters in diameter) were observed.

IRAC INSPECTIONS

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

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
08/22/2003	Small area of splatter (approximately 10 feet in length) was observed on fringing marsh. Segment met IRAC criteria endpoints. Note: only half of segment (near W1F-03) checked by IRAC team. Remainder of segment not inspected.

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: Trace splatter was observed.
01/20/2004	Phase I characterization activities: Marsh intertidal sediment samples (W1F04-UIT-01, W1F04-UIT-02, and W1F04-UIT-03) were collected from three sample locations centered around N41°37.692' W70°48.896', N41°37.751' W70°48.958', and N41°37.972' W70°49.190', respectively. 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 PAHs by 8270C/SIM analysis.
08/24/2004	Site reconnaissance: Two dried tarballs (approximately 2 to 3 inches in diameter) were removed from the upper intertidal zone towards the southeastern portion of the segment. Trace splatter was observed in the lower intertidal zone on large boulders. A marsh sediment sample (W1F04-S01) was collected at N41°37.639' W70°48.842' and a surface water sample (W1F04-W01) was collected at N41°37.895' W70°48.899'.

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: W1F-04
Brandt Island Cove, Mattapoisett

Sample ID	Date Collected	Matrix	Analysis	Laboratory	Sampling Program	Sample Location Coordinates		Sample Location Description	Comments
						Latitude	Longitude		
W1F04-UIT-01	1/20/2004	Sediment	PAH EPH	GAI	MCP-Phase I Site Assessment	N41°37.692'	W70°48.895'	Marsh	Composite
W1F04-UIT-02						N41°37.750'	W70°48.957'		
W1F04-UIT-03						N41°37.972'	W70°49.190'		
W1F04-S01	8/24/2004	Sediment	PAH EPH	GAI	MCP-At Risk Phase II	N41°37.639'	W70°48.843'	Marsh	Grab
W1F04-W01		Water	PAH	B&B		N41°37.896'	W70°48.899'		

NOTES:

1. B&B: B&B Laboratories.
2. GAI: Groundwater Analytical, Inc.

TABLE 2
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: WIF-04
Brandt Island Cove, Mattapoisett

Analyte	WIF-UIT-01	WIF-UIT-02	WIF-UIT-03	WIF04-S01	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Upper Intertidal Sediment	Upper Intertidal Sediment	Upper Intertidal Sediment	Marsh Sediment				
	1/20/2004	1/20/2004	1/20/2004	8/24/2004	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
EPH								
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND (45)	ND (44)	ND (38)	ND(45)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND (45)	ND (44)	ND (38)	ND(45)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND (45)	ND (44)	ND (38)	ND(45)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C								
Naphthalene	0.012j	0.015	0.013	ND(0.015)	4	40	500	0.160
2-Methylnaphthalene	0.009j	0.009j	0.008j	ND(0.015)	4	500	500	0.070
Acenaphthylene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	100	100	100	0.044
Acenaphthene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	20	1,000	1,000	0.016
Fluorene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	400	1,000	1,000	0.019
Phenanthrene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	700	1,000	100	0.240
Anthracene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	1,000	1,000	1,000	0.085
Fluoranthene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	1,000	1,000	1,000	0.600
Pyrene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	7	7	7	0.261
Chrysene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	7	7	7	0.384
Benzo(b)fluoranthene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	7	7	7	NA
Benzo(k)fluoranthene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	70	70	70	NA
Benzo(a)pyrene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	7	7	7	NA
Dibenzo(a,h)anthracene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND (0.015)	ND (0.015)	ND (0.013)	ND(0.015)	1,000	1,000	1,000	NA

NOTES:

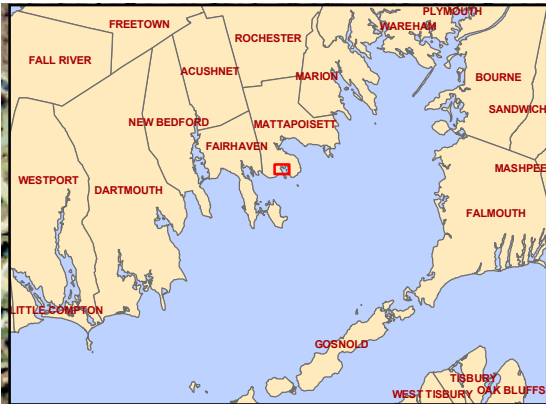
1. Results in mg/Kg (milligrams per kilogram).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits (PQL) noted in parentheses.
4. PAH by GC/MS-SIM: Polynuclear Aromatic Hydrocarbon analysis by Gas Chromatography/Mass Spectrometry with Selected 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: W1F-04
Brandt Island Cove, Mattapoisett

Analyte	W1F04-W01		Water Quality Standards	
	Marsh Water			
	8/24/2004		MADEP VPH/EPH Surface Water Guideline	NOAA SQuiRT Ambient Water Quality Criteria Maximum Concentration
EPH				
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(500)		1,800	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(500)		2,100	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(150)		See Note Below	NA
PAH by GC/MS-SIM by method 8270C				
Naphthalene	ND(0.6)		NA	2,350
2-Methylnaphthalene	ND(0.6)		NA	300
Acenaphthylene	ND(0.6)		NA	300
Acenaphthene	ND(0.6)		NA	970
Fluorene	ND(0.6)		NA	300
Phenanthrene	ND(0.6)		NA	7.7
Anthracene	ND(0.6)		NA	300
Fluoranthene	ND(0.6)		NA	40
Pyrene	ND(0.6)		NA	300
Benzo(a)anthracene	ND(0.6)		NA	300
Chrysene	ND(0.6)		NA	300
Benzo(b)fluoranthene	ND(0.6)		NA	300
Benzo(k)fluoranthene	ND(0.6)		NA	300
Benzo(a)pyrene	ND(0.6)		NA	300
Indeno(1,2,3-c,d)pyrene	ND(0.6)		NA	300
Dibenzo(a,h)anthracene	ND(0.6)		NA	300
Benzo(g,h,i)perylene	ND(0.6)		NA	300

NOTES:

1. Results in ug/l (micrograms per liter).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits 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. NA: Not Applicable.
7. Effects for C11-C22 Aromatic Hydrocarbons may be seen at less than the EPH reporting limit.
8. MADEP: Massachusetts Department of Environmental Protection.
9. VPH: Volatile Petroleum Hydrocarbons.



W1F-04

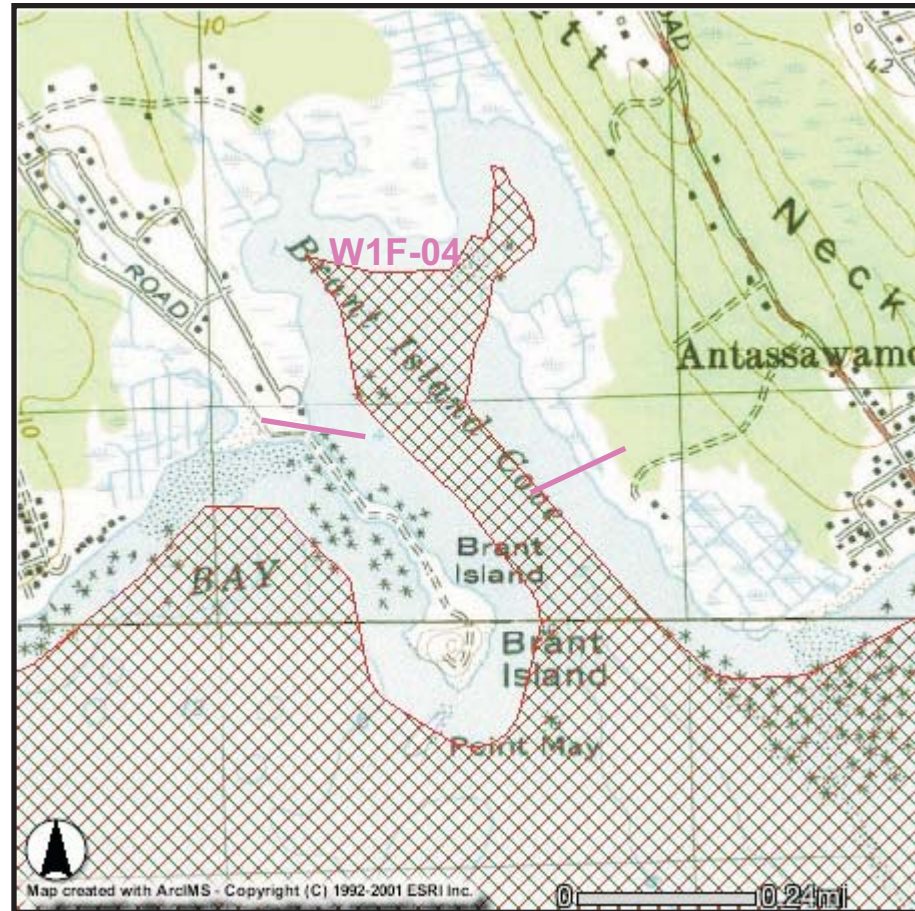
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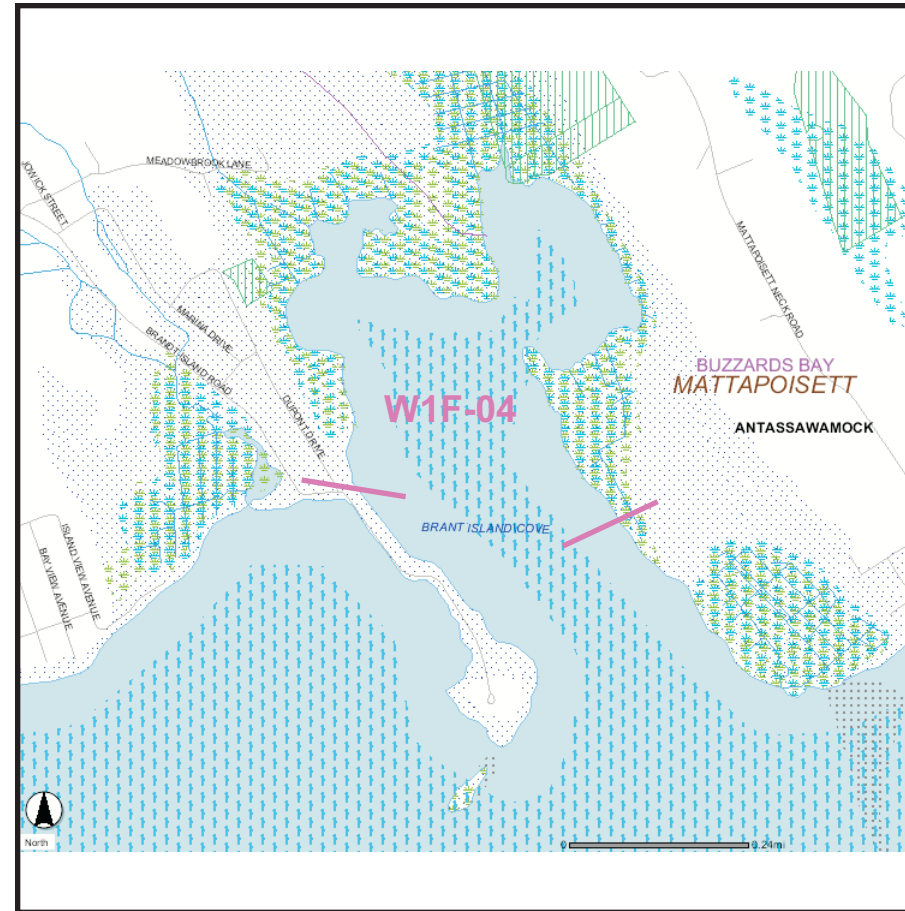
E N T R I X

W1F-04
Brandt Island Cove
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA

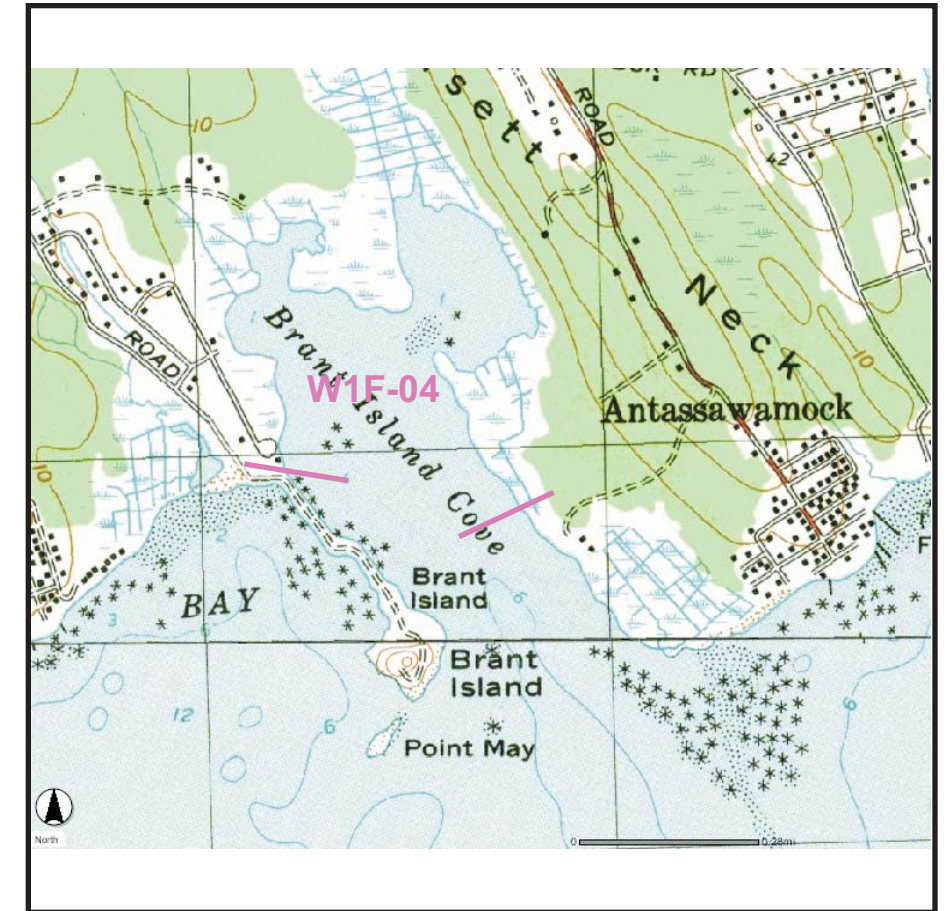
NATURAL HERITAGE AND ENDANGERED SPECIES MAP



2IE PRIORITY RESOURCE MAP



TOPOGRAPHIC MAP












































LEGEND


 NHESP 2005 MA PRIORITY HABITATS FOR STATE-PROTECTED RARE SPECIES

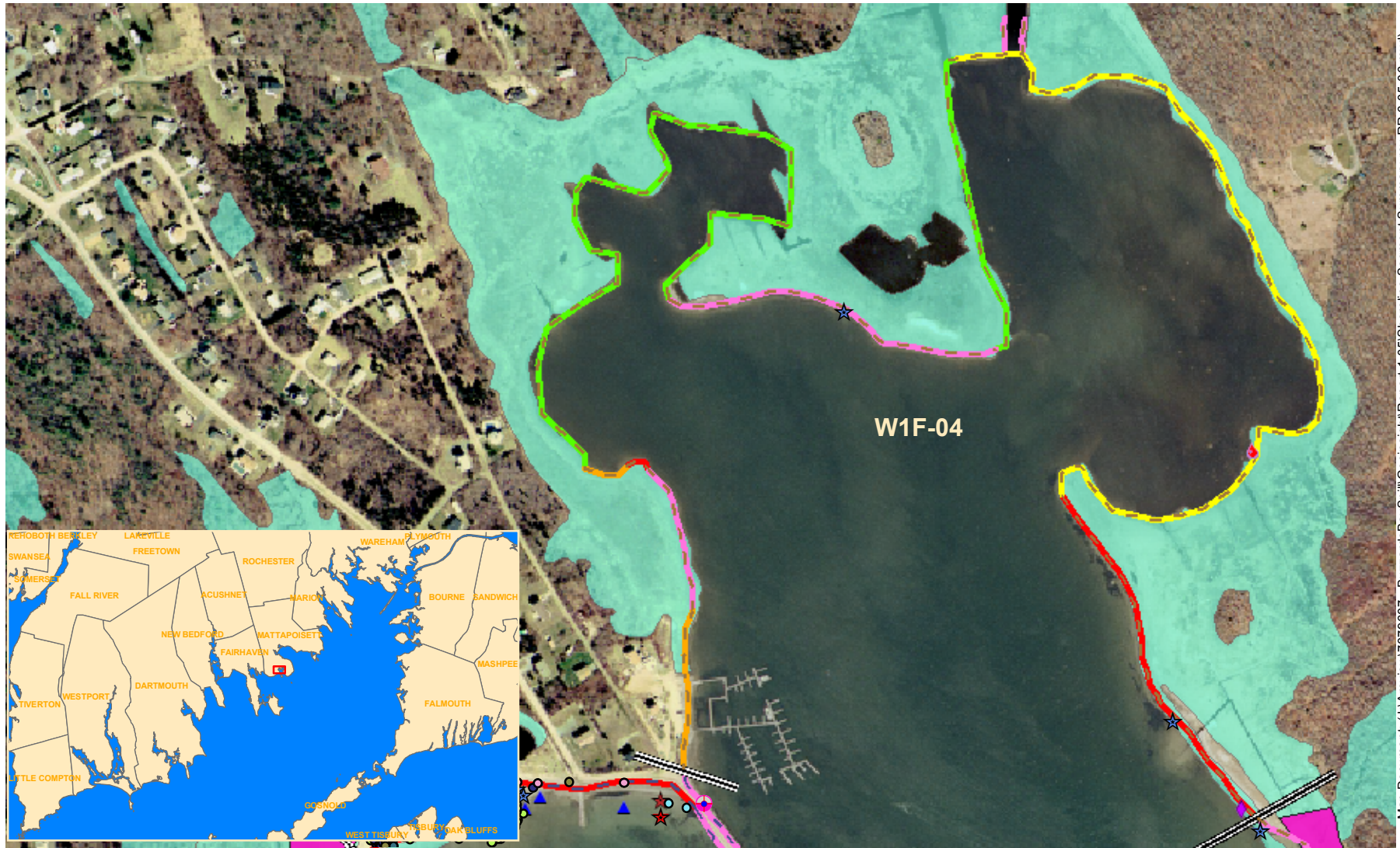
 NHESP 2005 MA ESTIMATED HABITATS OF RARE WILDLIFE

DEP MCP 21e Map Legend

-  Zone IIs
 -  IWPA's
 -  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
 -  Non Potential Drinking Water Source Area
 -  HIGH YIELD
 -  MEDIUM YIELD
 -  FEMA Floodplains
 -  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		
		LOCATION: BRANDT ISLAND COVE BUZZARDS BAY, MA		
TITLE: PHASE II SUPPORTING MAPS				
DESIGNED: LAC	DRAWN: JKB	CHECKED: KDT	APPROVED: MJW	FIGURE #: WIF-04
SCALE: AS SHOWN	DATE: 01/25/06	FILE: 3871WIF-04	PROJECT #: 3871-002	



Map Document: (J:\Arxiv\7079607 - 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

0 250 500 Feet



ENTRIX

W1F-04
Brandt Island Cove,
Mattapoissett
Comprehensive Activities
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA