US Army Corps of Engineers
Rock Island District

Defense Environmental Restoration Program
For
Formerly Used Defense Sites
Ordnance and Explosives Waste

U.S. Army Defense Ammunition Center and School
Savanna, Illinois

Archives Search Report

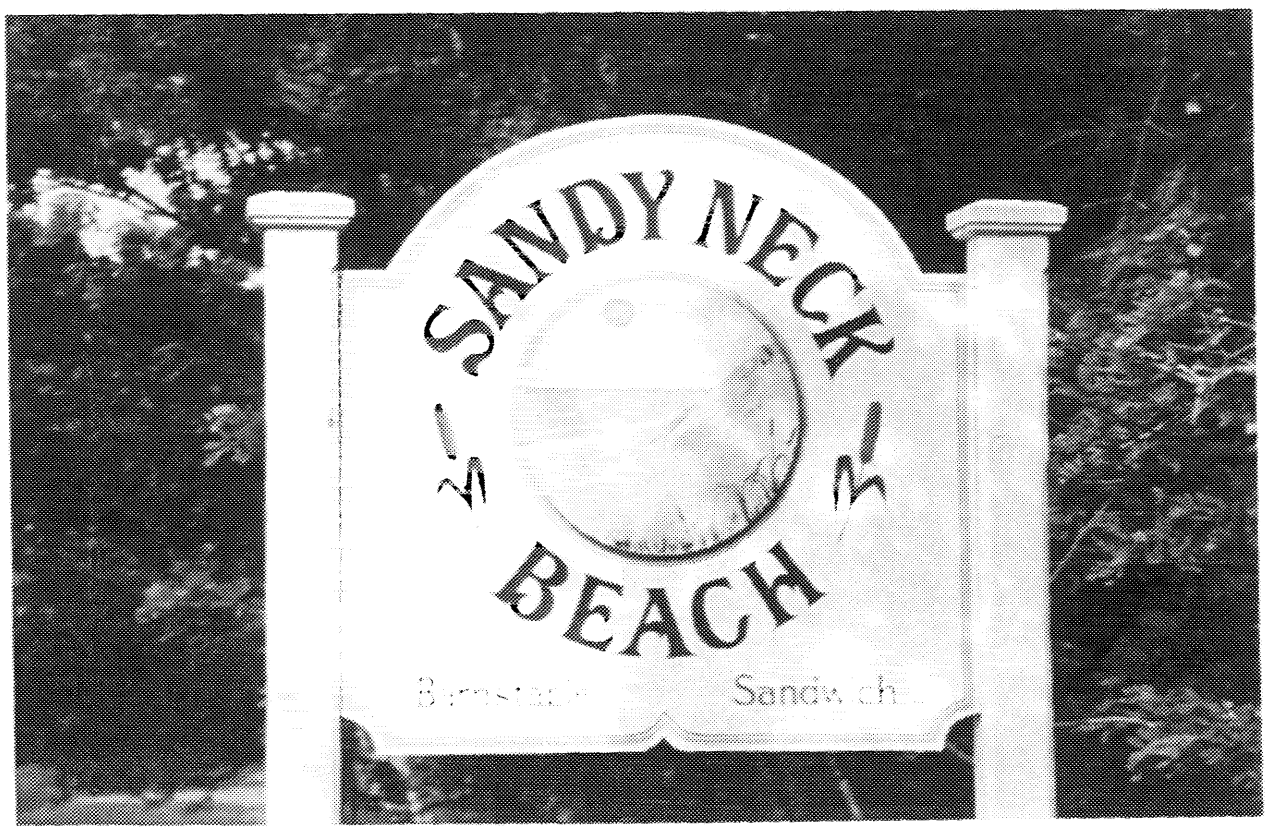
CONCLUSIONS AND RECOMMENDATIONS

FOR

SANDY NECK BOMB TARGET RANGE

Barnstable, Massachusetts
Project Number D01MA045101

September 1995



DEFENSE ENVIRONMENTAL RESTORATION PROGRAM

for

FORMERLY USED DEFENSE SITES

CONCLUSIONS AND RECOMMENDATIONS

ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT for the former SANDY NECK BOMB TARGET RANGE BARNSTABLE, MASSACHUSETTS PROJECT NUMBER D01MA045101

September 1995

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ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT for the former SANDY NECK BOMB TARGET RANGE BARNSTABLE, MASSACHUSETTS PROJECT NUMBER D01MA045101

ACKNOWLEDGMENT

The following persons provided support as indicated.

Function	Name	Title	Organization	Telephone
On-site Assessment	*Michael La Forge	Q.A. Spec., Ammunition (QASAS)	SIOAC-ESL	(815)273-8762
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*Team Leader

PROJECT FACT SHEET
FORMERLY USED DEFENSE SITES
30 July 1995

1. **SITE NAME:** Sandy Neck Bomb Target Range

SITE NUMBER: D01MA0451

LOCATION:
CITY: Barnstable
COUNTY: Barnstable
STATE: Massachusetts

PROJECT NUMBER: D01MA045101

CATEGORY: OE

2. **POC:**

GEOGRAPHICAL DIVISION	CEHND-MCX/OE
PROJECT MANAGER	TECHNICAL MANAGER
NAME:	NAME:
OFFICE:	OFFICE: CEHND-
PHONE:	PHONE:
DIVISION POC	*HEADQUARTERS POC:*
NAME: Anne Laster	NAME:
OFFICE: CENED-RE-AM	OFFICE:
PHONE: (617) 334-3223	PHONE:

3. **SITE DESCRIPTION:**

Sandy Neck Bomb Target Range was located on a penisula which forms the northern boundary of Barnstable County, approximately one mile north of Barnstable, Massachusetts. The site consisted of 308.6 acres of coastal dune area on a barrier beach known as Sandy Neck on the northern shore of Cape Cod. The majority of the site is owned today by the Town of Barnstable, Massachusetts and is utilized as a recreation and conservation area for swimming, horseback riding, and fishing. Endangered species and cultural artifacts are found throughout the site.

4. **SITE HISTORY:**

The site was selected for use as a dive bombing target range to support Fleet Air operational training at Quonset Point Naval Air Station, Rhode Island in September 1944. The site was used for carrier aircraft precision dive bombing skills maintenance and practice until February 1946, when the leases were cancelled.

5. **PROJECT DESCRIPTION:**

Area A:	Size:	10.0
	Use:	Bomb Target Range
	Confirmed OE/CWM:	Practice bombs
	Suspected OE/CWM:	N/A
	ASR Recommendation:	EE/CA
Area B:	Size:	50.0
	Use:	Buffer Zone
	Confirmed OE CWM:	N/A
	Suspected OE/CWM:	Practice Bombs
	ASR Recommendation:	ESI with EE/CA if OE presence is confirmed
Area C:	Size:	248.6
	Use:	Remaining Area
	Confirmed OE CWM:	No
	Suspected OE/CWM:	No
	ASR Recommendation:	NOFA

6. **CURRENT STATUS:**

PA: 100%
ASR: 100%
INTERIM RESPONSE ACTION: None recommended.
EE/CA: Not scheduled.
RD: Not scheduled.
RA: Not scheduled.

7. **STRATEGY:**

Area A: EE/CA
Area B: ESI with EE/CA if indicated
Area C: NOFA

8. **ISSUES AND CONCERNS:**

Area A: Cultural artifacts throughout the site. All efforts must be closely coordinated with the SHPO.
Area B: Cultural artifacts throughout the site. All efforts must be closely coordinated with the SHPO.
Area C: None

9. **SCHEDULE SUMMARY:**

Phase	Orig. Start	Sch. Start	Actual Start	Orig. Comp.	Sch. Comp.	Actual Comp.

10. **FUNDING/BUDGET SUMMARY:**

Year	Phase	EXEC FOA	In House Required	Contract Required	Funds Obligated

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
for the former
SANDY NECK BOMB
TARGET RANGE
BARNSTABLE, MASSACHUSETTS
PROJECT NUMBER D01MA045101

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are provided by the Archives Search Team. These recommendations may not be the actions taken to remediate the site.

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B. RISK ASSESSMENT SHEET - AREA B
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ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT FOR THE FORMER SANDY NECK BOMB TARGET RANGE BARNSTABLE, MASSACHUSETTS PROJECT NUMBER D01MA045101

1. INTRODUCTION

a. Subject and Purpose

(1) This report presents the conclusions and recommendations of an historical records search and site inspection (SI) for the presence of ordnance and explosives (OE) located at the former Sandy Neck Bomb Target Range, Barnstable, Massachusetts.

(2) The purpose of this investigation was to characterize the site for actual and/or potential ordnance/chemical warfare materiel (CWM) contamination using available historical records, interviews, and the results of an on-site visual inspection.

b. Scope

(1) The investigation focused on 308.6 acres of land used by the Navy as a Bomb Target Range during the period September 1944 through February 1946.

(2) The conclusions and recommendations presented in this report were drawn from available records and the visual site inspection. The conclusions, including ordnance risk assessment, were based on confirmed/documented evidence and potential or reasonably inferred evidence from the investigation. The recommendations made are based on present Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP/FUDS) program goals and policies, with implementation subject to approval and appropriate funding actions.

2. CONCLUSIONS

a. Summary of Conclusions

Table 2-1 has been provided to summarize conclusions made on confirmed and potential OE on the Sandy Neck Bomb Target Range (see plate 2 for project area).

TABLE 2-1
SUMMARY OF CONCLUSIONS

Area	Former Use	Present Use	Probable End Use	Size Acres	FUDS ELIGIBILITY		ORDNANCE PRESENCE			
					Confirmed FUDS	Potential FUDS	Confirmed Presence	Potential Presence	Uncontaminated	Risk Assessment Code
A	Bomb Targets	Recreation	Same	10.0	Yes	-	Yes	-	-	2
B	Buffer Zone	Recreation	Same	50.0	Yes	-	-	Yes	-	2
C	Remaining	Recreation	Same	248.6	Yes	-	-	-	Yes	5
			Total:	308.60 Acres						

b. Historical Site Summary

(1) The site was acquired by lease in September 1944 to provide dive bombing proficiency practice for Fleet Arm naval aviators training at NAS Quonset Point while their assigned carriers were being refitted and reprovisioned at shipyard facilities at Quonset Point. The target area was not used by raw trainees, but trained aviators hoping to to maintain and sharpen previously learned skills.

(2) The minimal range facilities were completed in September 1944, and utilized until the site was declared excess and the leases cancelled in February 1946.

(3) Historical records indicate that no construction was accomplished prior to lease termination. OE has been found on the site but there are no records of any injuries or damage to property due to its presence.

c. Site Eligibility

Former land usage by the Navy was previously confirmed for the entire 308.6 acres as summarized in U.S. Army Corps of Engineers Findings and Determination of Eligibility, 4 March 1994.

d. Visual Site Inspection

During the period 6-10 June 1995, members of the Site Inspection (SI) team traveled to the former Sandy Neck Bomb Target Range. The primary task of the SI team was to assess OE presence and potential due to the usage of the site as a bomb target during WW II to support training at the Quonset Point NAS. Evidence of OE contamination was noted during the site survey.

e. Confirmed Ordnance Areas

(1) Confirmation of ordnance presence is based on verifiable historical evidence or direct witness of ordnance items.

(2) Area A is considered to have **confirmed contamination.**

f. Potential Ordnance Areas

(1) Potential ordnance contamination is based on a lack of confirmed ordnance. Potential ordnance contamination is inferred from records or indirect witness. Inference from historical records would include common practice in production, storage, usage, or disposal, at that time, which could have allowed present day ordnance contamination.

(2) Area B is considered **potentially contaminated** at this site.

g. Uncontaminated Areas

(1) Uncontaminated ordnance subsites are based on a lack of confirmed or potential ordnance evidence.

(2) Area C is considered **uncontaminated by ordnance and explosives** at this site (see plate 3).

h. Other Environmental Hazards

No confirmed or potential environmental hazards are pending or contemplated for this site. There are no BD/DR projects pending or contemplated for this site.

3. RECOMMENDATIONS

a. Summary of Recommendations

Table 3-1 is an overall summary of the site recommendations.

TABLE 3-1
SUMMARY OF RECOMMENDATIONS

Area	Former Usage	Size Acres	PA ACTIONS	OE ACTIONS				HTRW ACTIONS	BD/DR ACTIONS
			Prepare INPR	No Further Action	Implement IRA	Perform ESI	Perform EE/CA	Perform SI	Perform SI
A	Bomb Targets	10.0	-	-	-	-	Yes	-	-
B	Buffer Zone	50.0	-	-	-	Yes*	-	-	-
C	Remaining Area	248.6	-	Yes	-	-	-	-	-
	TOTAL:	308.6							

* Perform EE/CA only if results of ESI confirm OE presence

b. Preliminary Assessment Actions

The Preliminary Assessment of the former Sandy Neck Bomb Target and Findings and Determination of Eligibility (FDE) accurately describes the 308.6 acres as used by the U.S. Navy.

c. Ordnance and Explosives Actions

(1) An Engineering Estimate/Cost Analysis (EE/CA) is recommended for Area A.

(2) An Expanded Site Inspection (ESI) for Area B. If the results of the ESI indicate OE presence, recommend an EE/CA.

(3) Recommend No Further Action (NOFA) is recommended for Area C upon review of historical records and the site visual inspection.

(4) Table 3-2 contains a summary of EE/CA Considerations for the site.

TABLE 3-2
SUMMARY OF EE/CA ISSUES AND CONCERNS

Area	Present Use	Size Acres	Design Item	Issues and concerns
A	Recreation	10.0	Field Investigation	Endangered Species Cultural Site Dune Conservation
			Site End Use	Recreation
B	Recreation	50.0	Field Investigation	Endangered Species Cultural Site Dune Conservation
			Site End Use	Recreation

d. Other Environmental Remediation Actions

No other remedial actions are recommended at this time.

ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT FOR THE FORMER SANDY NECK BOMB TARGET RANGE BARNSTABLE, MASSACHUSETTS PROJECT NUMBER D01MA045101

RISK ASSESSMENTS

18 Apr 94
Previous editions obsolete

RISK ASSESSMENT PROCEDURES FOR
ORDNANCE AND EXPLOSIVE (OE) SITES

Site Name	Sandy Neck Bomb Target	Rater's Name	Mike La Forge
Site Location	Barnstable, MA	Phone No.	815-273-8762
DERP Project #	D01MA045101 Area A	Organization	SIOAC-ESL
Date Completed	6 June 1995	RAC Score	2

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at Formerly Used Defense Sites. The OE risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OE hazards identified at the site. The risk assessment is composed of two factors, **hazard severity** and **hazard probability**. Personnel involved in visits to potential OE sites should view the CEHND video tape entitled "A Life Threatening Encounter: OE."

Part 1. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel exposure to various types and quantities of unexploded ordnance items.

TYPES OF ORDNANCE
(Circle all values that apply)

A. Conventional Ordnance and Ammunition	VALUE
Medium/Large Caliber (20 mm and larger)	10
Bombs, Explosive	10
Grenades, Hand and Rifle, Explosive	10
Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursters	6
Bombs, Practice (w/spotting charges)	(6)
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms (.22 cal - .50 cal)	1
Conventional Ordnance and Ammunition (Select the largest single value)	6

What evidence do you have regarding conventional OE? Visual ID, EOD and Police reports

B. *Pyrotechnics. (For munitions not described above)*

	VALUE
Munition (Container) Containing White Phosphorous or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munition Containing a Flame or Incendiary Material (i.e. Napalm, Triethlaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smoke (other than WP)	4
Pyrotechnics (Select the largest single value)	0

What evidence do you have regarding pyrotechnics? None.

C. Bulk High Explosives (Not an integral part of convention ordnance; uncontainerized.)

	VALUE
Primary or Initiating Explosive (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Composition A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc).	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc).	3
High Explosives (Select the largest single value)	0

What evidence do you have regarding bulk explosives? None.

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	0

What evidence do you have regarding propellants? None

E. Chemical Warfare Material and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5

Chemical and Radiological (Select the largest single value) 0

What evidence do you have of chemical/radiological OE? None

==========

TOTAL HAZARD SEVERITY VALUE 6
(Sum of Largest Values for A through E--Maximum of 61).
Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY*

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 and greater
CRITICAL	II	11 to 20
MARGINAL	(III)	5 to 10
NEGLIGIBLE	IV	1 to 4
**NONE		0

*** Apply Hazard Severity Category to Table 3.**

** If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other related factors of unexploded ordnance or explosive materials on a formerly used DOD site.

AREA, EXTENT, ACCESSIBILITY OF CONTAMINATION
(Circle all values that apply)

A. Locations of OE Hazards

	VALUE
On the surface	(5)
Within Tanks, Pipes, Vessels or Other confined locations	4
Inside walls, ceilings, or other parts of Buildings or Structures	3
Subsurface	2

Location (Select the single largest value) 5

What evidence do you have regarding location of OE? Visual ID and EOD reports.

B. Distance to nearest inhabited locations or structures likely to be at risk from OE hazard (roads, parks, playgrounds, and buildings).

	VALUE
Less than 1250 feet	(5)
1250 feet to 0.5 miles	4
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1

Distance (Select the single largest value) 5

What are the nearest inhabited structures? Public Beach

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	(5)
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0

Number of Buildings (Select the single largest value) 5

Narrative Area is one mile north of the Town of Barnstable.

D. Types of Buildings (within a 2 mile radius)

	VALUE
Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers	(5)
Industrial, Warehouse, etc.	4
Agricultural, Forestry, etc.	3
Detention, Correctional	2
No Buildings	0

Types of Buildings (Select the largest single value) 5

Describe types of buildings in the area. Residential and recreation area structures.

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

BARRIER	VALUE
No barrier or security system	(5)
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier, (or any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated Site	1
a 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility, or An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitor, locked entrance, or controlled roadway access to the facility).	0

Accessibility (Select the single largest value) 5

Describe the site accessibility. Accessible by sea or by 4WD along beach during normal tides.

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Example would be excessive soil erosion by beaches or streams, increasing land development that could reduce distance from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	(5)
None Anticipated	0

Site Dynamics (Select largest value) 5

Describe the site dynamics. Dunes are constantly in motion due to wind action. Good chance of storm erosion.

Total Hazard Probability Value
(Sum of Largest Values for A through F--Maximum of 30) 30

Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY*

Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*** Apply Hazard Probability Level to Table 3.**

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

Probability Level		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
Severity Category:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	(2)	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call *CEHND-ED-SY--commercial 205-955-4968 or DSN 645-4968.*

(RAC 2) High priority on completion of INPR - Recommend further action by CEHND.

RAC 3 Complete INPR - Recommend further action by CEHND.

RAC 4 Complete INPR - Recommend further action by CEHND.

RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

Part IV. Narrative. Summarize the documented evidence that support this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

MK 23 practice bombs were visually identified on the site. Review of documentation discovered during the site inspection and historical records search support the fact that the area was used for training dive bomber pilots assigned to NAS Quonset Point, RI during WW II. This area is very popular with tourists and local residents year round for fishing, bathing, and shellfishing. Endangered species and cultural artifacts are located at this site.

18 Apr 94
Previous editions obsolete

RISK ASSESSMENT PROCEDURES FOR ORDNANCE AND EXPLOSIVE (OE) SITES

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Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursters	6
Bombs, Practice (w/spotting charges)	(6)
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms (.22 cal - .50 cal)	1
Conventional Ordnance and Ammunition (Select the largest single value)	6

What evidence do you have regarding conventional OE? Visual ID, EOD and Police reports

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What evidence do you have regarding conventional OE? Visual ID, EOD and Police reports

B. Pyrotechnics. (For munitions not described above)

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Munition (Container) Containing White Phosphorous or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
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What evidence do you have regarding pyrotechnics? None.

C. Bulk High Explosives (Not an integral part of convention ordnance; uncontainerized.)

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Primary or Initiating Explosive (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Composition A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc).	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc).	3
High Explosives (Select the largest single value)	0

What evidence do you have regarding bulk explosives? None.

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	0

What evidence do you have regarding propellants? None

E. Chemical Warfare Material and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5

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What evidence do you have of chemical/radiological OE? None

==========

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(Circle all values that apply)

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	VALUE
On the surface	(5)
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Inside walls, ceilings, or other parts of Buildings or Structures	3
Subsurface	2
Location (Select the single largest value)	5

What evidence do you have regarding location of OE? Visual ID and EOD reports.

B. Distance to nearest inhabited locations or structures likely to be at risk from OE hazard (roads, parks, playgrounds, and buildings).

	VALUE
Less than 1250 feet	(5)
1250 feet to 0.5 miles	4
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1
Distance (Select the single largest value)	5

What are the nearest inhabited structures? Public Beach

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	(5)
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0

Number of Buildings (Select the single largest value) 5

Narrative Area is one mile north of the Town of Barnstable.

D. Types of Buildings (within a 2 mile radius)

	VALUE
Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers	(5)
Industrial, Warehouse, etc.	4
Agricultural, Forestry, etc.	3
Detention, Correctional	2
No Buildings	0

Types of Buildings (Select the largest single value) 5

Describe types of buildings in the area. Residential and recreation area structures.

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

BARRIER	VALUE
No barrier or security system	(5)
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier, (or any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated Site	1
a 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility, or An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitor, locked entrance, or controlled roadway access to the facility).	0

Accessibility (Select the single largest value) 5

Describe the site accessibility. Accessible by sea or by 4WD along beach during normal tides.

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Example would be excessive soil erosion by beaches or streams, increasing land development that could reduce distance from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	(5)
None Anticipated	0

Site Dynamics (Select largest value) 5

Describe the site dynamics. Dunes are constantly in motion due to wind action. Good chance of storm erosion.

Total Hazard Probability Value
(Sum of Largest Values for A through F--Maximum of 30) 30

Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY*

Description	Level	Hazard Probability Value
FREQUENT	(A)	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*** Apply Hazard Probability Level to Table 3.**

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

Probability Level		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
Severity Category:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	(2)	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-ED-SY--commercial 205-955-4968 or DSN 645-4968.

(RAC 2) High priority on completion of INPR - Recommend further action by CEHND.

RAC 3 Complete INPR - Recommend further action by CEHND.

RAC 4 Complete INPR - Recommend further action by CEHND.

RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

Part IV. Narrative. Summarize the documented evidence that support this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

MK 23 practice bombs were visually identified on the site. Review of documentation discovered during the site inspection and historical records search support the fact that the area was used for training dive bomber pilots assigned to NAS Quonset Point, RI during WW II. This area is very popular with tourists and local residents year round for fishing, bathing, and shellfishing. Endangered species and cultural artifacts are located at this site.

18 Apr 94
Previous editions obsolete

RISK ASSESSMENT PROCEDURES FOR ORDNANCE AND EXPLOSIVE (OE) SITES

Site Name	Sandy Neck Bomb Target	Rater's Name	Mike La Forge
Site Location	Barnstable, MA	Phone No.	815-273-8762
DERP Project #	D01MA045101 Overall	Organization	SIOAC-ESL
Date Completed	6 June 1995	RAC Score	2

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at Formerly Used Defense Sites. The OE risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OE hazards identified at the site. The risk assessment is composed of two factors, **hazard severity** and **hazard probability**. Personnel involved in visits to potential OE sites should view the CEHND video tape entitled "A Life Threatening Encounter: OE."

Part 1. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel exposure to various types and quantities of unexploded ordnance items.

TYPES OF ORDNANCE
(Circle all values that apply)

A. Conventional Ordnance and Ammunition	VALUE
Medium/Large Caliber (20 mm and larger)	10
Bombs, Explosive	10
Grenades, Hand and Rifle, Explosive	10
Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursters	6
Bombs, Practice (w/spotting charges)	(6)
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms (.22 cal - .50 cal)	1
Conventional Ordnance and Ammunition (Select the largest single value)	6

What evidence do you have regarding conventional OE? Visual ID, EOD and Police reports

B. Pyrotechnics. (For munitions not described above)

	VALUE
Munition (Container) Containing White Phosphorous or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munition Containing a Flame or Incendiary Material (i.e. Napalm, Triethlaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smoke (other than WP)	4
Pyrotechnics (Select the largest single value)	0

What evidence do you have regarding pyrotechnics? None.

C. Bulk High Explosives (Not an integral part of convention ordnance; uncontainerized.)

	VALUE
Primary or Initiating Explosive (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Composition A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc).	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc).	3
High Explosives (Select the largest single value)	0

What evidence do you have regarding bulk explosives? None.

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	0

What evidence do you have regarding propellants? None

E. Chemical Warfare Material and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5

Chemical and Radiological (Select the largest single value) 0

What evidence do you have of chemical/radiological OE? None

TOTAL HAZARD SEVERITY VALUE 6
(Sum of Largest Values for A through E--Maximum of 61).
Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY*

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 and greater
CRITICAL	II	11 to 20
MARGINAL	III	5 to 10
NEGLIGIBLE	IV	1 to 4
**NONE		0

*** Apply Hazard Severity Category to Table 3.**

** If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other related factors of unexploded ordnance or explosive materials on a formerly used DOD site.

AREA, EXTENT, ACCESSIBILITY OF CONTAMINATION
(Circle all values that apply)

A. Locations of OE Hazards

	VALUE
On the surface	(5)
Within Tanks, Pipes, Vessels or Other confined locations	4
Inside walls, ceilings, or other parts of Buildings or Structures	3
Subsurface	2
Location (Select the single largest value)	5

What evidence do you have regarding location of OE? Visual ID and EOD reports.

B. Distance to nearest inhabited locations or structures likely to be at risk from OE hazard (roads, parks, playgrounds, and buildings).

	VALUE
Less than 1250 feet	(5)
1250 feet to 0.5 miles	4
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1
Distance (Select the single largest value)	5

What are the nearest inhabited structures? Public Beach

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	(5)
16 to 25	4
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6 to 10	2
1 to 5	1
0	0

Number of Buildings (Select the single largest value) 5

Narrative Area is one mile north of the Town of Barnstable.

D. Types of Buildings (within a 2 mile radius)

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	VALUE
Expected	(5)
None Anticipated	0

Site Dynamics (Select largest value) 5

Describe the site dynamics. Dunes are constantly in motion due to wind action. Good chance of storm erosion.

Total Hazard Probability Value
(Sum of Largest Values for A through F--Maximum of 30) 30

Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY*

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REMOTE	D	8 to 14
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*** Apply Hazard Probability Level to Table 3.**

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TABLE 3

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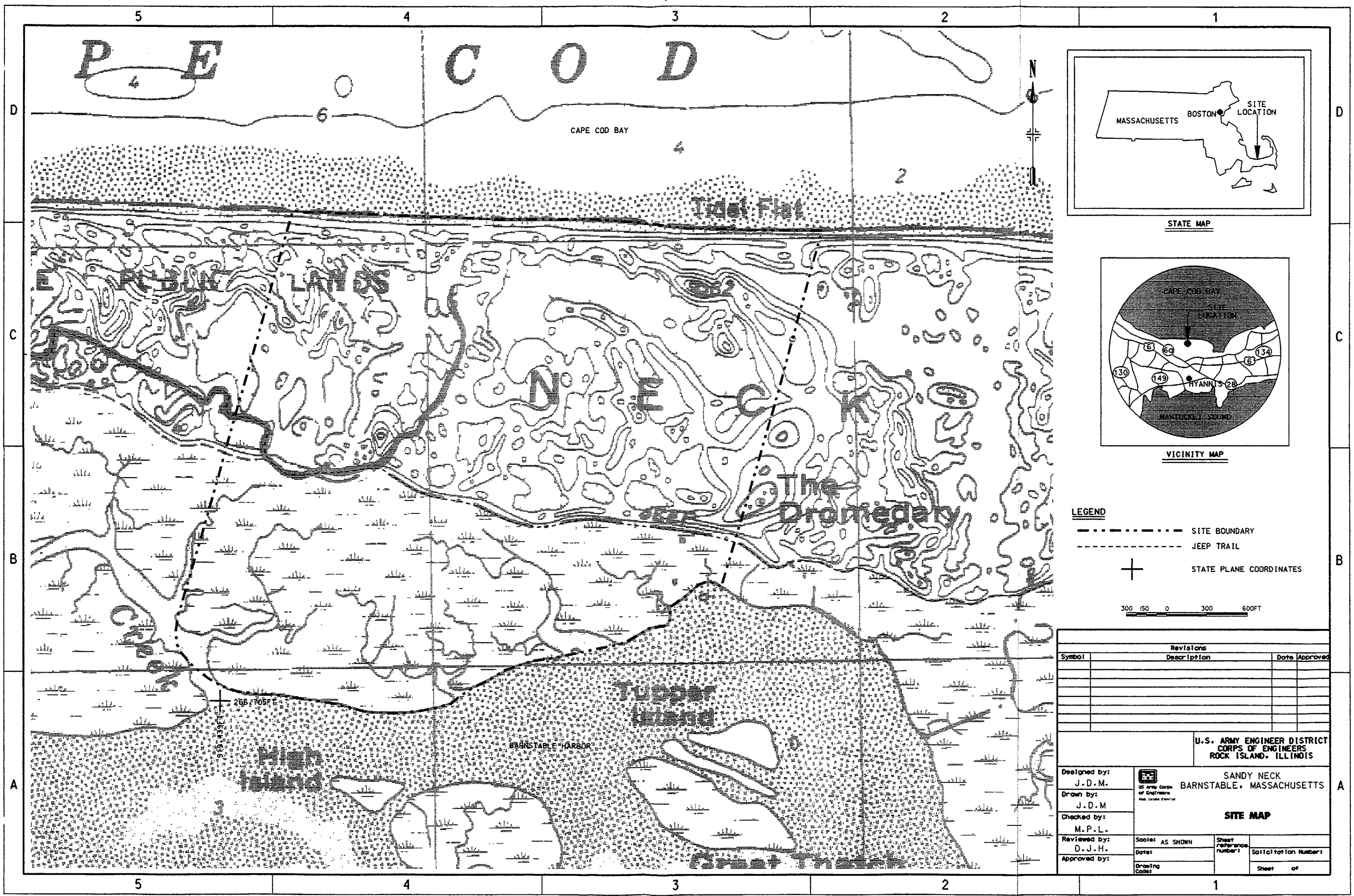
MK 23 practice bombs were visually identified on the site. Review of documentation discovered during the site inspection and historical records search support the fact that the area was used for training dive bomber pilots assigned to NAS Quonset Point, RI during WW II. This area is very popular with tourists and local residents year round for fishing, bathing, and shellfishing. Endangered species and cultural artifacts are located at this site. This overall RAC is based upon the overall size of the site and the frequent use made of it by seasonal and year-round visitors.

ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT FOR THE FORMER SANDY NECK BOMB TARGET RANGE BARNSTABLE, MASSACHUSETTS PROJECT NUMBER D01MA045101

PLATES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CAPE COD BAY
Tidal Flat
PUBLIC LANDS
NECK
The Dromedary
Creek
Tupper Island
High Island
BARNSTABLE HARBOR
Great Thatch
266,705FE
N
STATE MAP
MASSACHUSETTS
BOSTON
SITE LOCATION
VICINITY MAP
CAPE COD BAY
SITE LOCATION
HYANNIS
NANTUCKET SOUND
LEGEND
SITE BOUNDARY
JEEP TRAIL
STATE PLANE COORDINATES
300 150 0 300 600FT
Revisions
Symbol
Description
Date
Approved
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
Designed by: J.D.M.
Drawn by: J.D.M
Checked by: M.P.L.
Reviewed by: D.J.H.
Approved by:
US Army Corps of Engineers
SANDY NECK
BARNSTABLE, MASSACHUSETTS
SITE MAP
Scale: AS SHOWN
Date:
Drawing Code:
Sheet reference number:
Solicitation Number:
Sheet of

PLATE 1

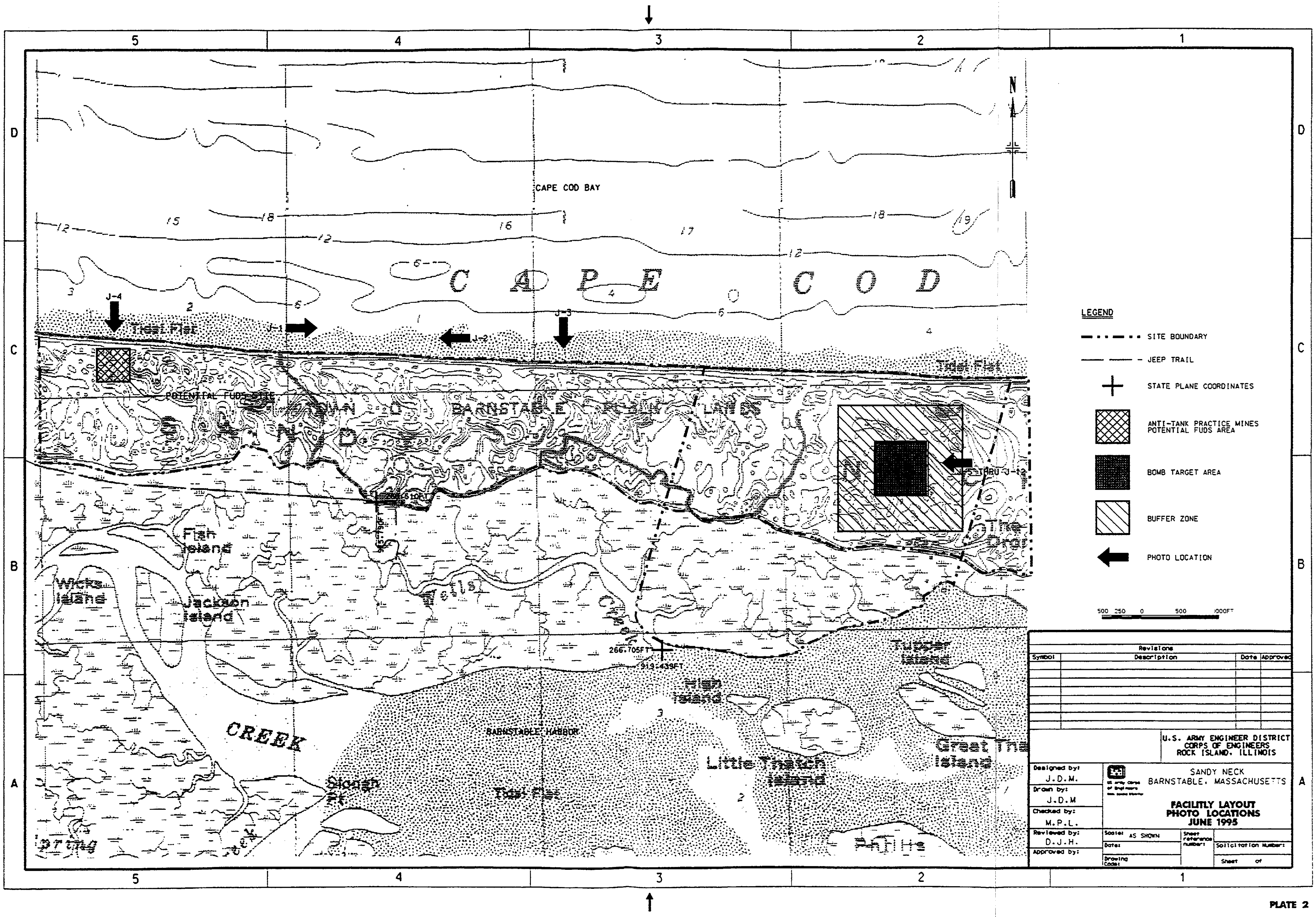
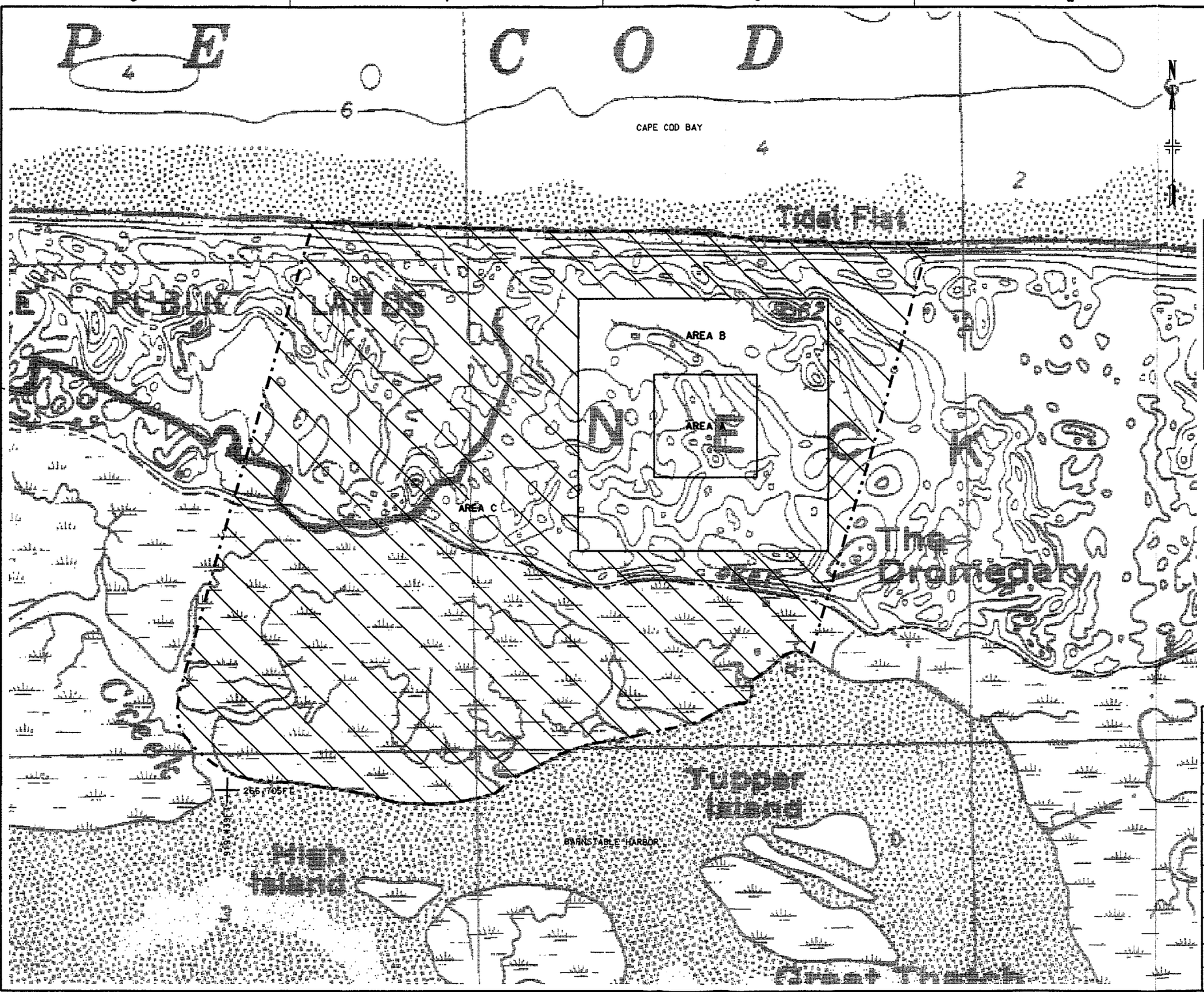

CAPE COD BAY
C A P E C O D
Tidal Flat
POTENTIAL FUDS SITE
BARNSTABLE
Fish Island
Wicks Island
Jackson Island
Wells
CREEK
BARNSTABLE HARBOR
High Island
Little Thatch Island
Great Thatch Island
Tupper Island
Slough Pt
J-1
J-2
J-3
J-4
J-5 THRU J-12
266.705FT
913.439FT
LEGEND
SITE BOUNDARY
JEEP TRAIL
STATE PLANE COORDINATES
ANTI-TANK PRACTICE MINES POTENTIAL FUDS AREA
BOMB TARGET AREA
BUFFER ZONE
PHOTO LOCATION
500 250 0 500 1000FT
Revisions
Symbol
Description
Date
Approved
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
Designed by: J.D.M.
Drawn by: J.D.M
Checked by: M.P.L.
Reviewed by: D.J.H.
Approved by:
SANDY NECK
BARNSTABLE, MASSACHUSETTS
FACILITLY LAYOUT
PHOTO LOCATIONS
JUNE 1995
Scale: AS SHOWN
Date:
Drawing Code:
Sheet reference number:
Solicitation Number:
Sheet of

PLATE 2



SUMMARY OF AREAS			
AREA	FORMER USAGE	OEW PRESENCE	ACREAGE*
A	BOMB TARGET AREA	CONTAMINATED	10.0
B	BUFFER ZONE	POTENTIAL	50.0
C	REMAINING LAND	UNCONTAMINATED	248.6
		TOTAL ACREAGE	308.6

* APPROXIMATE ACREAGE

NOTE: ALL LAND IS OWNED BY THE TOWN OF BARNSTABLE WITH THE EXCEPTION OF SIX 1/4 ACRE LOTS SHOWN IN APPENDIX G-1

LEGEND

- SITE BOUNDARY
- JEEP TRAIL
- STATE PLANE COORDINATES

300 150 0 300 600FT

Revisions			
Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: J.D.M.
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US Army Corps of Engineers Rock Island District

SANDY NECK
BARNSTABLE, MASSACHUSETTS

PROJECT AREAS
CURRENT OWNERSHIP

Scale: AS SHOWN
Date:
Drawing Code:
Sheet reference number:
Solicitation Number:
Sheet of

PLATE 3