

APPENDIX B

Cultural Resources Survey

(MATER 1999)

*A Phase I Upland and Underwater
Archaeological Survey of the
Dare County Beaches and Borrow Areas,
North Carolina*

Contract Number:
DACW54-99-P-3057
and
DACW54-97-P-3416

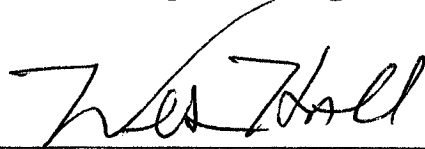
Submitted To:

U.S. Army Corps of Engineers
Wilmington District

Submitted By:

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A handwritten signature in black ink, appearing to read 'Wes Hall', is written over a horizontal line.

Wes Hall

6 March 1999

ABSTRACT

The U.S. Army Corps of Engineers, Wilmington District, is preparing to re-nourish Dare County beaches using sand from proposed borrow areas situated in the Atlantic Ocean, off the contiguous towns of Nags Head, Kill Devil Hills, and Kitty Hawk. The re-nourishment project will include approximately 20 miles of beach, beginning just north of Oregon Inlet and ending at the town of Kitty Hawk. Sand will be borrowed from three areas totaling approximately 20 square miles of ocean bottom.

Numerous historic shipwrecks are known to have occurred along the Outer Banks, many of which have been reported near the Dare County beach re-nourishment project. To insure that no significant shipwrecks or other archaeological resources are adversely effected by the planned offshore dredging and beach reconstruction, the Wilmington District contracted Mid-Atlantic Technology and Environmental Research, Inc. of Castle Hayne, North Carolina, to conduct an archaeological survey of the effected beach and borrow areas. The archaeological survey included marine remote sensing using a marine magnetometer and side-scan sonar to identify any submerged cultural resources within the proposed borrow areas. The archaeological survey also included a terrestrial reconnaissance along Dare County beaches to identify any exposed shipwreck remains. Field investigations for the project were conducted in two parts and under two separate contracts. The first portion of the survey was conducted between 19 and 30 July 1997 and included a remote sensing survey of four areas called E, C, B, and A. The second portion of the survey was carried out between 15 November and 30 December 1998. The added areas were mostly contiguous with and expanded areas E, C, B, and A. The new areas were called 1, 2, 3, and 4, and resulted in 3 individual borrow areas.

As a result of the remote sensing survey, only three (3) single-source magnetic anomalies were identified within the borrow areas. No acoustic targets were identified. Because a significant number of vessels have been lost near the inlet, potentially all of the magnetic anomalies might be associated with a historic shipwreck. However, single isolated objects of modern or historic origin seldom have the potential to meet the criteria for nomination to the National Register of Historic Places.

During the 1997 and 1998 field season, no archaeological sites were observed on the beach within the proposed nourishment area. Near shore or beach wrecks are most frequently exposed during winter months or following storms. Because exposure of potential wrecks sites in the vicinity of the proposed beach re-nourishment project is a transient phenomenon, the North Carolina Department of Cultural Resources has recommended that additional investigations take place within a few months of project construction. These investigations will likely be conducted by State and U.S. Army Corps of Engineers Staff, or will be conducted under their supervision.

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INTRODUCTION

The U.S. Army Corps of Engineers, Wilmington District, is preparing to re-nourish Dare County beaches using sand from proposed borrow areas situated in the Atlantic Ocean, off the contiguous towns of Nags Head, Kill Devil Hills, and Kitty Hawk. The re-nourishment project will include approximately 20 miles of beach, beginning just north of Oregon Inlet and ending at the town of Kitty Hawk. Sand will be borrowed from three areas totaling approximately 20 square miles of ocean bottom. Numerous historic shipwrecks are known to have occurred along the Outer Banks, many of which have been reported near the Dare County beach re-nourishment project. To insure that no significant shipwrecks¹ or other archaeological resources are adversely effected by the planned offshore dredging and beach reconstruction, the Wilmington District contracted Mid-Atlantic Technology And Environmental Research, Inc. (M-AT/ER) of Castle Hayne, North Carolina, to conduct an archaeological survey of the effected beach and borrow areas. The archaeological survey included marine remote sensing using a marine magnetometer² and side-scan sonar³ to identify any submerged cultural resources within the proposed borrow areas. The archaeological survey also included a terrestrial reconnaissance along Dare County beaches to identify any exposed shipwreck remains.

The project was conducted in two parts and under two separated contracts. The first portion of the survey was conducted between 19 and 30 July 1997 and included a remote sensing survey of four areas called E, C, B, and A. The second portion of the survey was conducted between 15 November and 30 December 1998. The added areas were mostly contiguous with and

¹ A National Policy for historic preservation has been established in accordance with authorization contained in Section 106 and 110 (formerly E.O. 11593) of the National Historic Preservation Act of 1966 as amended following the Advisory Council on Historic Preservation Regulations (36 CFR 800). Executive Order 11593 and the Historic Preservation Act Amendments of 1980 specified that the Federal Government shall provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation. In 1988, Abandoned Shipwreck Act (Public Law 100-298) declared that the States (or Territories of the U.S.) are to manage shipwrecks in States waters. As a result of these and other legislation, state and Federal agencies are required to administer cultural properties under their control in a spirit of stewardship and trusteeship. Each agency is required to initiate such measures as are necessary to insure that policies, plans, and programs will preserve sites, structures, and objects of historical or archaeological significance that exist on properties owned by the Federal Government or are subject to Federal regulation.

² A magnetometer is an electronic instrument that measures localized changes in the the earth's magnetic field. By using a magnetometer in a controlled survey, the presence of ferrous materials can be detected. Since most historically significant shipwrecks contain relatively large amounts of iron or steel in the form of fasteners, anchors, cannon, or engines, etc., their presence can frequently be detected by a magnetometer survey.

³ Side-scan sonar is an underwater acoustic instrument that by electronic means generates a graphic representation of the bottom surface. By interpretation of these graphic records, the user can identify geographic changes in the bottom or man-made objects protruding above the bottom surface.

expanded areas E, C, B, and A. The new areas were called 1, 2, 3, and 4, and resulted in 3 individual borrow areas. (When it was determined that additional sand was need to complete the beach re-nourishment project, a second survey was conducted so that the size of the original borrow areas could be expanded.)

In addition to the archaeological survey, bottom surface mapping using side-scan sonar was performed to identify "hard bottom areas."

PROJECT LOCATION: 1997 SURVEY

The four borrow areas surveyed in July 1997 were situated between 3,000 and 15,000 feet offshore (Figure 1). Area E was a six-sided polygon with a maximum length of approximately 20,000 feet and maximum width of approximately 8,200 feet. Area E was located parallel to and approximately 7,000 feet off the beach at Nags Head.

Area C was a six-sided reversed L-shaped area. The leg of the "L" was 10,400 feet long by 1,200 feet wide. The foot of the reversed L-shaped area was approximately 4,500 feet wide by 5,000 feet long. Area C was located approximately 5,500 feet off the beach between the towns of Kitty Hawk and Kill Devil Hills.

Area B also was a six-sided reversed L-shaped area. The leg of the "L" was 3,000 feet long by 2,200 feet wide. The foot of the "L" was 4,200 feet long by 2,000 feet wide. Area B was positioned 5,500 feet off the town of Kitty Hawk.

Area A was a long, narrow rectangular area 9,200 feet long by 1,150 feet wide, situated perpendicular to the beach and approximately 8,000 feet offshore of the Kitty Hawk Pier.

PROJECT LOCATION: 1998 SURVEY

The four offshore borrow areas 1, 2, 3, and 4 surveyed in 1998 are situated between 2,000 and 24,000 feet offshore. Area 1 is located directly east and contiguous with areas A, B, and C surveyed in 1997. Area 1 is an odd-shaped area approximately 24,000 feet long and varies in width from 100 to 6,000 feet.

Area 2 was located approximately 1,500 feet west of the north end of Area E. Area 2 is an odd-shaped area more than 5,000 feet long and approximately 3,500 feet wide.

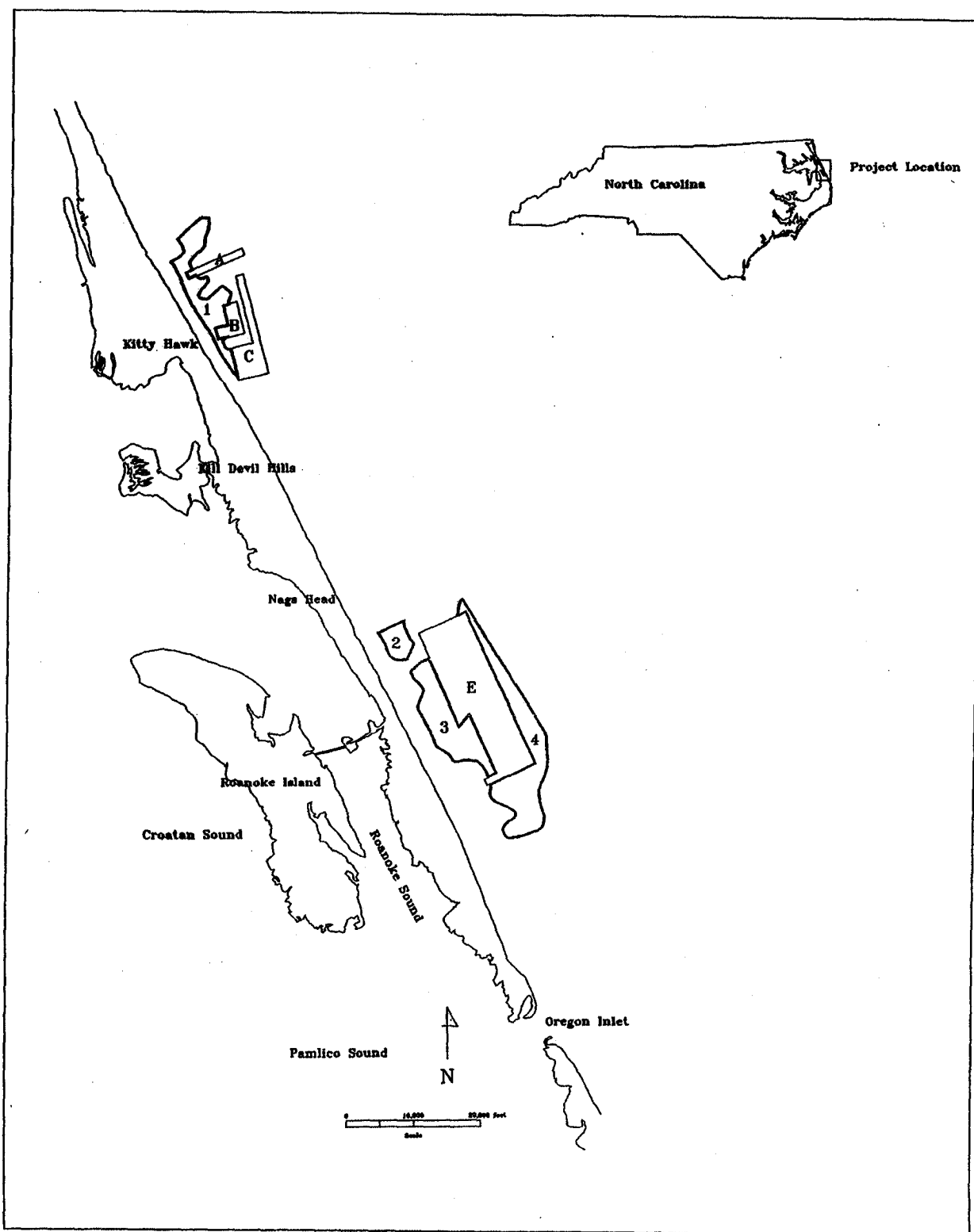


Figure 1. Project Location Map: 1997 and 1998.

Area 3 was located immediately east of Area E. Area 3 was an odd-shaped area more than 18,000 feet long and 1,200 to 6,500 feet wide. Area 4 was located immediately west of Area E.

Area 4 is more than 35,000 feet long and varies in width between 600 and more than 7,000 feet long.

DARE COUNTY BEACHES

Dare County beaches are situated on the northern portion of the coastal barrier island formation called the Outer Banks. The beach re-nourishment project is associated with the contiguous communities of Nags Head, Kill Devil Hills, and Kitty Hawk, which are located along the southern portion of Bodie Island, beginning just north of Oregon Inlet (Figure 1).

Survey Coordinates: 1997

Listed below are the North Carolina State Plane Coordinates for survey areas E, C, B, and A, which are based on the NAD 83 datum.

Area E			Area C		
	<u>Northing</u>	<u>Easting</u>		<u>Northing</u>	<u>Easting</u>
1	815,608	3,011,066	1	869,468	2,984,157
2	818,874	3,018,280	2	869,739	2,985,250
3	795,640	3,028,800	3	854,780	2,988,961
4	792,217	3,021,240	4	853,869	2,974,434
5	793,455	3,020,680	5	858,483	2,983,290
6	794,346	3,022,647	6	859,322	2,986,674
7	802,999	3,018,729			
8	801,164	3,017,107			

Area B			Area A		
	<u>Northing</u>	<u>Easting</u>		<u>Northing</u>	<u>Easting</u>
1	865,112	2,982,192	1	870,091	2,976,623
2	865,620	2,998,423	2	873,609	2,985,045
3	860,816	2,985,431	3	872,626	2,985,455
4	859,830	2,981,455	4	869,108	2,977,034
5	861,704	2,980,990			
6	862,182	2,982,918			

Survey Coordinates: 1998

Survey coordinates for Areas 1, 2, 3, and 4 were digitized directly from U.S. Army Corp of Engineers Project maps. Since the areas are odd-shaped, no corner coordinates were used to develop the survey areas.

DESCRIPTION OF WORK: 1997 AND 1998

Preliminary Investigations

Prior to beginning the archaeological survey of Dare County beaches, M-AT/ER met with the Underwater Archaeology Unit (UAU) of the North Carolina Division of Archives and History at Kure Beach. As part of the meeting, investigators discussed known wreck sites along the beaches of Nags Head, Kill Devil Hills, and Kitty Hawk. The potential for unknown wreck sites also was discussed. Numerous wrecks just offshore of the beach have been recorded, but few sightings of wreckage on the beach have been reported. These limited sightings all were reported during extreme low tides, usually during the winter months when strong northeast winds had eroded beaches and exposed the wrecks.

Beach Reconnaissance: 1997

The archaeological reconnaissance of the beach was delayed until after peak tourist season and as far into the fall season as time allowed. City ordinances allow four-wheel-drive vehicles on the beach after October 1st. The reconnaissance began at Oregon Inlet and was terminated at the Kitty Hawk Pier. A two-man team, either walking or driving the beach (with a four-wheel-drive GMC), conducted the beach reconnaissance on 6, 7, and 8 October 1997. The beach was examined from the dune line to the water at low tide. Occasionally, city lifeguards were queried about exposed wrecks and wreck sites on the beach. Lifeguards, several of whom are divers familiar with the shipwrecks near the beach, regularly patrol the beach on 4-wheelers.

Beach Reconnaissance: 1998

On 23 and 24 December 1998, a second reconnaissance was conducted by driving the beach from Oregon Inlet to Kitty Hawk Pier.

Remote Sensing Survey: 1997

M-AT/ER's underwater archaeology team conducted the remote sensing survey of the four proposed borrow areas (E, C, B, and A) from a 25-foot

survey vessel. Three remote sensing devices were used: 1) a Geometrics 886 proton precession marine magnetometer; 2) a Klein System 2000 dual-frequency, digital, side-scan sonar; and 3) an Odom Hydrographics System Echotrac DF3200MKII depth recorder. Each instrument was interfaced with a NAVSTAR™ Differential Global Positioning System. Magnetic data, along with corresponding positioning data, was recorded at one-second intervals (or approximately every 10 feet along a track line at 6 knots) using MAGSEA™ data acquisition software. A small, V-Fin cable depressor was utilized to keep the Geometrics marine sensor at an average depth of 20 feet above the bottom surface in the shallowest portions of each survey area. Variation in depth along survey lines varied as much as 20 feet in Area E. The depth of inshore survey areas A, B, and C only varied 5 to 8 feet (depending on wave action and bottom changes). Inshore survey area acoustic data, along with corresponding positioning data, was recorded continuously on paper and/or 8mm data tapes. The side-scan sonar fish was maintained at an altitude above the bottom that provided the most detailed records (generally 20 to 30 feet). Hydrographic data was recorded entirely in HYPACK™ hydrographic survey and navigation software.

Irregularly-shaped borrow areas were subdivided into rectangular areas to facilitate the survey with HYPACK navigation software. Data was collected along parallel lines spaced at 100-foot intervals throughout each borrow area. At the end of the general survey, magnetic anomalies/targets were relocated and their state plane coordinates were recorded using HYPACK.

Remote Sensing Survey: 1998

The remote sensing survey was conducted using three remote sensing devices: 1) a Geometrics 881 cesium marine magnetometer; 2) a DF-1000 EdgeTech digital, dual-frequency (100-500 kHz) side-scan sonar with a 560D Processor; and 3) a JRC precision depth recorder. Each of these instruments was interfaced with a Starlink Differential Global Positioning System. Data was collected along parallel lines spaced at 100-foot intervals. Magnetic data, along with corresponding positioning data, was recorded at one-second intervals (or approximately every 10 feet along a track line at 6 knots) using MAGSEA™ and HYPACK™ data acquisition software. A 65-pound, tri-wing cable depressor/stabilizer was used to keep the Geometrics marine sensor at a depth of approximately 20 feet above the bottom surface. Acoustic data, with corresponding positioning data, was recorded continuously using SeaSone Hunter™ acoustic data acquisition software and was stored on Jazz diskettes. Hydrographic data was recorded and is being accessed entirely with HYPACK™ hydrographic survey and navigation software.

Data was collected along parallel lines spaced at 100-foot intervals throughout each borrow area. At the end of the general survey, magnetic anomalies/targets were relocated and their state plane coordinates were recorded using HYPACK.

DESCRIPTION OF FINDINGS

Investigations to identify documented shipwrecks near the project area revealed that more than 197 ships have wrecked in the region north of Oregon Inlet.

Most of the shipwrecks occurred during the nineteenth century. However, because of the region's propensity for shipwrecks, many unrecorded wrecks could have occurred in previous centuries.

Shipwreck List

KNOWN LOCATIONS OF UNNAMED WRECKS AND WRECKAGE

Wreck Name	Type Vessel	Location
18.3 Mile South Nags Head	25' long vessel	18¼ miles S. Nags Head
Single Frame		3½ miles S. of NPS Maintenance Shop
Coquina Beach		100 yards S. of NPS Maintenance Shop
Brill Site		Mile 19 S. Nags Head
Nansemond Colony Wreck		1 mile S. Outer Banks Fishing Pier
Outer Banks Pier Site		5 th house N. of Outer Banks Fishing Pier
Juncos Street		100 yards S. Junco Street Beach Access
Dune Timber		½ mile below Outer Banks Pier
Seafoam Wreck		Nags Head adjacent to Seafoam Hotel
Latham Wreck		¼ mile N. Jeannettes Pier
Nags Head Wreck II		S. of Nags Head Fishing Pier
Nags Head Wreck		Water Tower, Town Hall
Peterson I		Southern Shores just off 4 th Avenue
Peterson II		Southern Shores 200 ft. S. of 4 th Avenue
North Bodie Island Wreck		Mile 3.5
Hill Crest Road Wreck		Foot of Hill Crest Drive
Kitty Hawk Worthington Site		Mile 13.5
6.8 Mile South Poyners Hill Site		Mile 6.8 Poyners Hill
Septic Tank Wreck		N. of East Forest Street Ramp

REPORTED SHIPWRECKS

Wreck Name	Date Lost	Type Vessel	Location
<i>James E. Newsome</i>		Schooner	off Nags Head
<i>Phillipa</i>	1728	Brigantine	Old Roanoke Inlet
<i>Delaware</i>	1741	Ship	2 leagues S. Old Roanoke Inlet
<i>Marget</i>	1773	Ship	off Bodie Island
<i>Chance</i>	1789	Schooner	Bodie Island near Currituck
<i>Patriot</i>	1813	Pilot Boat Privateer	Nags Head

Wreck Name	Date Lost	Type Vessel	Location
<i>Bolina</i>	1816	N/A	on Bodie Island
<i>General Swift</i>	1817	Brig	60 miles N. of Cape Hatteras
<i>Stoughton</i>	1818	Brig	near Three Sand Hills
<i>William Carlton</i>	1818	Ship	north banks of Kill Devil Hills
<i>Peter Francisco</i>	1823	N/A	on Bodie Island
<i>Eliza & Mary</i>	1825	Schooner	on Bodie Island
<i>Enterprise</i>	1825	Schooner	near Roanoke Island
<i>Enterprise</i>	1827	Schooner	Nags Head
<i>Louisa Matilda</i>	1827	N/A	on Bodie Island
<i>Cuba</i>	1828	Brig	1 mile S. of Nags Head
<i>Adams</i>	1829	Brig	Bodie Island
<i>Sarah Ann</i>	1829	Schooner	Kitty Hawk
<i>Mexican</i>	1830	Schooner	Bodie Island
<i>Milly Francis</i>	1830	Schooner	Bodie Island
<i>Perfect</i>	1830	Ship	Bodie Island
<i>Eliza</i>	1831	Brig	Bodie Island
<i>James Madison</i>	1831	Schooner	Bodie Island
<i>Hendrica</i>	1831	Galliot	on Bodie Island
<i>Pearl</i>	1832	Brig	Bodie Island
<i>Hercules</i>	1833	Brig	Bodie Island
<i>Thomas Wyny</i>	1833	Schooner	Bodie Island
<i>Two Brothers</i>	1833	Schooner	Nags Head
<i>Chesapeake</i>	1834	Schooner	on Caffees Inlet
<i>York</i>	1834	Schooner	Nags Head
<i>Belle</i>	1836	Schooner	Bodie Island
<i>Francis Ellen</i>	1836	Schooner	Nags Head
<i>Lydia</i>	1836	Brig	on Bodie Island
<i>Alhambra</i>	1837	Schooner	Bodie Island
<i>Enterprize</i>	1837	Brig	Bodie Island
<i>Merchant</i>	1837	Schooner	on Bodie Island
<i>Victory</i>	1837	Schooner	Bodie Island
<i>Unknown Brig</i>	1838	Brig	30 miles S. Currituck Beach on Kitty Hawk Banks
<i>Franklin</i>	1839	Schooner	on Bodie Island, 2 miles N. of New Inlet
<i>Unknown Schooner</i>	1839	Schooner	at Bodie Island
<i>Edwin</i>	1840	Brig	Bodie Island
<i>Pedestrian</i>	1840	Schooner	20 miles N. of New Inlet
<i>Marion</i>	1842	Brig	Bodie Island
<i>Trident</i>	1842	Schooner	near Bodie Island
<i>Roger Pameley</i>	1843	Schooner	Bodie Island
<i>William Taylor</i>	1843	Brig	on Bodie Island
<i>Danube</i>	1844	Schooner	40 miles S. Cape Henry
<i>McDonough</i>	1844	Schooner	Kitty Hawk, 12 miles N. Nags Head
<i>Moon</i>	1845	Brig	Nags Head
<i>Anthracaphora</i>	1846	Schooner	Nags Head
<i>Baltimore</i>	1846	Schooner	on Nags Head
<i>Chingarora</i>	1846	Schooner	5 miles S. of Nags Head
<i>Columbia</i>	1846	Ship	Bodie Island at Powell Point
<i>Eclipse</i>	1846	Schooner	5 miles S. of Nags Head
<i>E.W. Bradley</i>	1846	Schooner	4 miles S. of Nags Head
<i>Gratitude</i>	1846	Pilot	off Nags Head
<i>Howard</i>	1846	Ship	at Nags Head
<i>Howell (Howard)</i>	1846	Ship	ashore 4-5 miles S. of Nags Head
<i>Letitia</i>	1846	Schooner	ashore 10 miles N. of Nags Head

Wreck Name	Date Lost	Type Vessel	Location
<i>Lewis Spencer</i>	1846	Schooner	ashore on Bodie Island
<i>Mary Morris</i>	1846	Bark	4-5 miles S. of Nags Head
<i>Antilla</i>	1847	Schooner	Nags Head, 65-70 miles S. of Cape Henry
<i>H.W. Sprafford</i>	1847	Schooner	34 miles N. of Cape Hatteras
<i>Josephine</i>	1851	Schooner	at Nags Head
<i>Kingston</i>	1852	Barque	off Nags Head
<i>Mountaineer</i>	1852	General Steamer	20 miles S. of Currituck Inlet
<i>Augustus Moore</i>	1853	Schooner	Kitty Hawk
<i>Aurora S.</i>	1853	Schooner	3 miles N. of Nags Head
<i>Bladen</i>	1853	General Steamer	Kitty Hawk
<i>Rio</i>	1853	Schooner	Bodie Island between Hatteras and Cape Henry
<i>Wilson Fuller</i>	1853	Brig	on Bodie Island
<i>Idlewild</i>	1856	Brig	on Bodie Island
<i>Mary E. Hoover</i>	1856	Schooner	at Bodie Island
<i>Star of Empire</i>	1857	Ship	ashore 25 miles below Currituck Inlet
<i>Atlanta</i>	1858	Merchant Steamer	Bodie Island
<i>George Whitney</i>	1858	Brig	Nags Head
<i>John Castner</i>	1858	Schooner	at Nags Head
<i>Abby Whitman</i>	1859	Schooner	at Bodie Island
<i>Charles</i>	1859	Schooner	Nags Head
<i>Sutton</i>	1860	Brig	Bodie Island
<i>Ocean Express</i>	1861	Ship	Kill Devil Shoals
<i>Vera Cruz</i>	1861	Steamer	Bodie Island, 1 mile N. of Oregon Inlet
<i>Oriental</i>	1862	Iron Screw	Bodie Island, 33 miles N. of Cape Hatteras
<i>Crocus/Solomon Thomas</i>	1863	Tug	on Bodie Island
<i>Alcyone</i>	1866	Ship	on Bodie Island
<i>Sheridan</i>	1866	General Steamer	ashore on Bodie Island
<i>Adamantine</i>	1867	Schooner	Bodie Island
<i>Lizzie Taylor</i>	1867	Schooner	ashore in Nags Head
<i>Ellen P. Rich</i>	1868	Brig	ashore N. of Oregon Inlet
<i>Two Brothers</i>	1868	Ship	Bodie Island
<i>Ezra</i>	1869	Bark	Bodie Island on Outer Shoal
<i>San Jacinto</i>	1869	Steam Barge	ashore on Bodie Island
<i>F.E. Allen</i>	1870	Schooner	on Bodie Island
Unknown Schooner	1871	Schooner	ashore on Bodie Island
<i>Baltic</i>	1872	Bark	Bodie Island
English Bark	1872	Bark	ashore on Bodie Island
<i>Willie</i>	1872	Schooner	Bodie Island
Unknown Schooner	1872	Three-masted Schooner	between Cape Hatteras & False Hope
<i>Ariadne</i>	1873	General	Nags Head
<i>Harriet N. Rogers</i>	1873	Schooner	Bodie Island
<i>Volunteer</i>	1873	Iron Steamer	12 miles N. Bodie Island Light on Kitty Hawk
<i>J. Means</i>	1874	Schooner	outside reef 10 miles N. of Oregon Inlet
<i>Waltham</i>	1874	Brig	5½ miles S. of Bodie Island Light
<i>Ed J. Heraty</i>	1877	Schooner	5 miles N. of Kitty Hawk Beach
Unknown Schooner	1877	Schooner	12 miles N.E. of Kitty Hawk Station
<i>Western Star</i>	1877	Schooner	12 miles N. of Life Saving Station #6
Unknown Small Boat	1877	Boat	1 mile from Kitty Hawk Station
<i>Nipote</i>	1878	Barkentine	3 miles N. of Nags Head Station
Unknown Italian Brig	1878	Brig	north of Oregon Inlet

Wreck Name	Date Lost	Type Vessel	Location
<i>Success</i>	1879	Norwegian Barque	Bodie Island opposite Station #5
<i>Resolute</i>	1881	Steamer	northern side of Oregon Inlet
<i>Angela</i>	1883	Italian Barque	¼ mile S. Station – Paul Gamiel Hills
<i>Annie S. Carl</i>	1883	Schooner	½ mile N. of Nags Head Station
<i>C.W. Lewis</i>	1883	Schooner	6 miles S.E. of Kitty Hawk Station
<i>Luola Murchison</i>	1883	Schooner	abreast of Kitty Hawk Station
Unknown Small Boat	1883	Boat	½ mile N. of Nags Head Station
<i>USS Huron</i>	1887	Iron-hulled Steamer	Highway 158 Milepost II Nags Head
<i>Delhi</i>	1887	Schooner	3 miles N. of Kill Devil Hills Station
<i>Edith Linwood</i>	1887	Schooner	Bodie Island Light S. by S.W. 26 miles, N.W. by N. 58 miles
<i>Mary Ann</i>	1888	Sloop	¾ miles from Kitty Hawk Station
<i>Samuel Welsh</i>	1888	Bark	20 miles S.E. of Whales Head Station
<i>Francis E. Waters</i>	1889	Two-masted Schooner	2¾ miles N.N.W., Kill Devil Hills Station
<i>Hattie Lollis</i>	1889	Schooner	1½ miles N.N.W. of Nags Head Station
<i>Leallie</i>	1889	Schooner	ashore near Kitty Hawk
<i>WM H. Bailey</i>	1889	Schooner	N/A
Unknown Schooner	1889	Schooner	at Nags Head
<i>Dudley Farlin</i>	1890	Schooner	24 miles N.E. of Bodie Island Light
<i>Hudson</i>	1891	General Steamer	Bodie Island Beach, 3 miles S.S.E. Nags Head Station
<i>Sirene</i>	1892	Yacht	off Nags Head
<i>Anna</i>	1893	Bark	8 miles W., ½ mile S. of Cape Lookout Station
<i>Delphine</i>	1893	Fish Boat	2 miles N. of Oregon Inlet Station
<i>Emma J. Warrington</i>	1893	Two-masted Schooner	½ mile S. of Paul Gamiels Hills Station
<i>Peter H. Crowell</i>	1893	Schooner	13 miles off Bodie Island
Scow #9	1893	Scow	1 mile S.S.E. of Paul Gamiels Hill Station
Unknown Vessel	1893	N/A	2 miles E.S.E. of Bodie Island Light
<i>Florence C. Magee</i>	1894	N/A	off Bodie Island Light
<i>Florence C. McGee</i>	1894	Four-masted Schooner	¾ m. N. of Bodie Island Station, 600 yds offshore.
<i>Frisky</i>	1894	Fish Boat	2 miles N. of Oregon Inlet Station
<i>New Light</i>	1894	Bark	on Bogue Beach
<i>Frances Ann</i>	1894	Sloop	200 yards N. of Oregon Inlet
<i>I.J. Merritt</i>	1895	Steamer	2 miles S.S.E. of Kill Devil Hills Station
<i>Laura Nelson</i>	1895	Schooner	2½ miles from Bodie Island Station
<i>Manati</i>	1895	Steamer	2½ miles S.S.E. of Kill Devil Hills Station
<i>Trinidad</i>	1895	Barge	¾ mile N.N.W. of Kill Devil Hills Station
<i>William Frederick</i>	1895	Schooner	off Bodie Island
Unknown Steamer	1895	Steamer	near Bodie Island
<i>Mary Caroline</i>	1895	Sailboat	1/8 mile N. of Oregon Inlet Station
<i>Rosette</i>	1895	Sailboat	1/6 mile N. of Oregon Inlet Station
<i>Frederick Debarry</i>	1896	Passenger Steamer	2½ miles N. Kitty Hawk Life Saving Station
<i>George M. Adams</i>	1897	Schooner	1 mile S.S.E. Nags Head Station, 75yards from shore
<i>Matilda</i>	1897	Ship	2½ miles N. of Bodie Island Station
<i>Milton</i>	1898	Schooner	Bodie Island
<i>June</i>	1899	Sloop	1½ mile N. of Oregon Inlet Station
Unknown Boat	1899	Skiff	¼ mile E. Paul Gamiels Hill Station

Wreck Name	Date Lost	Type Vessel	Location
<i>Jane C. Harris</i>	1900	Schooner	2 miles N. of Oregon Inlet Station
<i>Honiton</i>	1900	Steamer	2¼ mile S.E. Paul Gamiels Hill Station
Unknown Boat	1901	Fish Boat	½ mile E.N.E. of Bodie Island Station
Unknown Boat	1901	Fish Boat	½ mile N. of Kitty Hawk Station
<i>J.F. Becker</i>	1903	Schooner	2½ miles N. Paul Gamiels Hill Station
<i>William H. Shubert</i>	1903	Three-masted Schooner	2 miles N. of Bodie Island Station
<i>Belle</i>	1904	Sloop	5 miles W.N.W. of Nags Head Station
<i>Aragon</i>	1905	Screw	17 miles N. of Bodie Island
<i>Goddard</i>	1905	Barge	ashore between Nags Head and Kill Devil Hills
<i>Lou Willis</i>	1905	Schooner	2 miles S.W. of Paul Gamiels Hill Station
<i>Thomas A. Goddard</i>	1905	Three-masted Schooner	Nags Head
Unknown Barge	1905	Barge	N. of Kill Devil Hills Station
<i>Mary I. Wroldson</i>	1906	Sloop	5 miles W. of Kitty Hawk Station
<i>Brant</i>	1907	Schooner	1 mile S.W. of Nags Head Station
<i>Bossert</i>	1907	Schooner	S. of Kill Devil Hills
<i>Charles S. Hirsch</i>	1908	Schooner	1¼ m. S.S.E. Paul Gamiels Hill Station, 100 yds offshore
<i>Flora Rogers</i>	1908	Three-masted Schooner	1 mile N. of Bodie Island
<i>Florence Shay</i>	1908	Schooner	Bodie Island
<i>William H. Davidson</i>	1910	Schooner	1½ miles S. Paul Gamiels Hill Station, 150 miles offshore
<i>Elizabeth</i>	1911	Gas Steamer	1½ miles S. of Nags Head Station
<i>Montrose W. Houck</i>	1913	Schooner	650 yards E. of Paul Gamiels Hill Station
<i>Helen H. Benedict</i>	1914	Three-masted Schooner	2½ miles S.S.E. of Nags Head Station
<i>Frank E. Swain</i>	1915	Schooner	off Bodie Island
<i>The Josephine</i>	1915	Schooner	1¼ miles S.E. Kill Devil Hills Station, 150 yards offshore
<i>A.A. Raven</i>	1917	Screw	on reef off Bodie Island
<i>Hattie Gage</i>	1918	Screw	2 miles S. of Nags Head Station
<i>Explorer</i>	1919	Seagoing Tug	N. of Nags Head Pier – 200 yards offshore
<i>M.B. Davis</i>	1920	Schooner	2¼ miles E. of Bogue Inlet Station
<i>Laura A. Barnes</i>	1921	Four-masted Schooner	1 mile N. of Bodie Island Station
<i>R.R. Govin</i>	1924	Schooner	14 miles off Bodie Island
<i>Irma</i>	1925	Schooner	1 mile N. of Kill Devil Hills Station
<i>Kyzickes (Paraguay) Site</i>	1927	Tanker Steamer	Mile Marker 7, Kill Devil Hills
<i>Carl Gerhard Site</i>	1929	N/A	Mile Marker 7, Kill Devil Hills
<i>Bainbridge</i>	1929	Schooner	Nags Head, 6 miles N. of Bodie Island Station
<i>Carl Gerhard</i>	1929	Swedish Steamer	1 mile N. of Kill Devil Hills
<i>St. Rita</i>	1932	Trawler	1 mile S. of Paul Gamiels Hill Station
<i>Glory</i>	1933	Steam Freighter	Nags Head
<i>Drinkwater</i>	1939	Gunboat	Manteo ?
<i>Oriental</i>	1969	Fishing Trawler	1 mile N. of Bodie Island Light
Unknown Vessel	1987	Landing Craft	35,54'01" N. by 75,23'48" W.
Unknown Barge	1989	Barge	Artificial Reef #140
Unknown Barge	1989	Barge	8.9 miles off Oregon Inlet Sea Buoy
<i>Advance II</i>	1995	Screw	Loran reading: 26941.2/ 40685.3

Beach Reconnaissance: 1997

No exposed shipwrecks were identified on the beach between Oregon Inlet and Kitty Hawk. Several disassociated and isolated wooden fragments of shipwrecks were identified mixed with other flotsam along the high-tide line. However, no articulate structural remains were found within the proposed beach re-nourishment area.⁴

Remote Sensing Survey: 1997

BORROW AREA E

No magnetic or acoustic targets were identified in Borrow Area E (Figure 2).

BORROW AREA C

Target C1: NC State Plane Coordinates: N=859,667 E=2,986,688

Target C1 had a dipolar magnetic signature of 62 gammas at maximum intensity (Appendix A). The object or material creating the magnetic anomaly influenced an area over 6 one-second sample intervals. The characteristics of the magnetic signature suggest that the object creating the anomaly is a single object of high ferrous mass relative to size. No acoustic signature corresponded to the magnetic anomaly. Heavy iron or steel anchors, pipe, or even historic cannon with a mass of less than 1 ton can create such an anomaly. Single isolated objects of modern or historic origin seldom have the potential to meet the criteria for nomination to the National Register of Historic Places. No additional investigations or mitigation is recommended (Figure 2).

Target C2: NC State Plane Coordinates: N=855,249 E=2,986,421

Target C2 had a dipolar magnetic signature of 49 gammas at maximum intensity (Appendix A). The object or material creating the magnetic anomaly influenced an area over 7 one-second sample intervals. The relatively high intensity and short duration of the magnetic signature suggest a small, high-mass object. No acoustic signature corresponded to

⁴ Three shipwreck sites were reported to M-AT/ER archaeologists by city lifeguards: 1.) The well-known wreck of the *Huron*, off the foot of Bladen Street, Nags Head; 2.) Unknown wreck offshore at the foot of Eckner Street in Kitty Hawk; 3.) Unknown wreck offshore in the vicinity of the Bath House, Kitty Hawk.

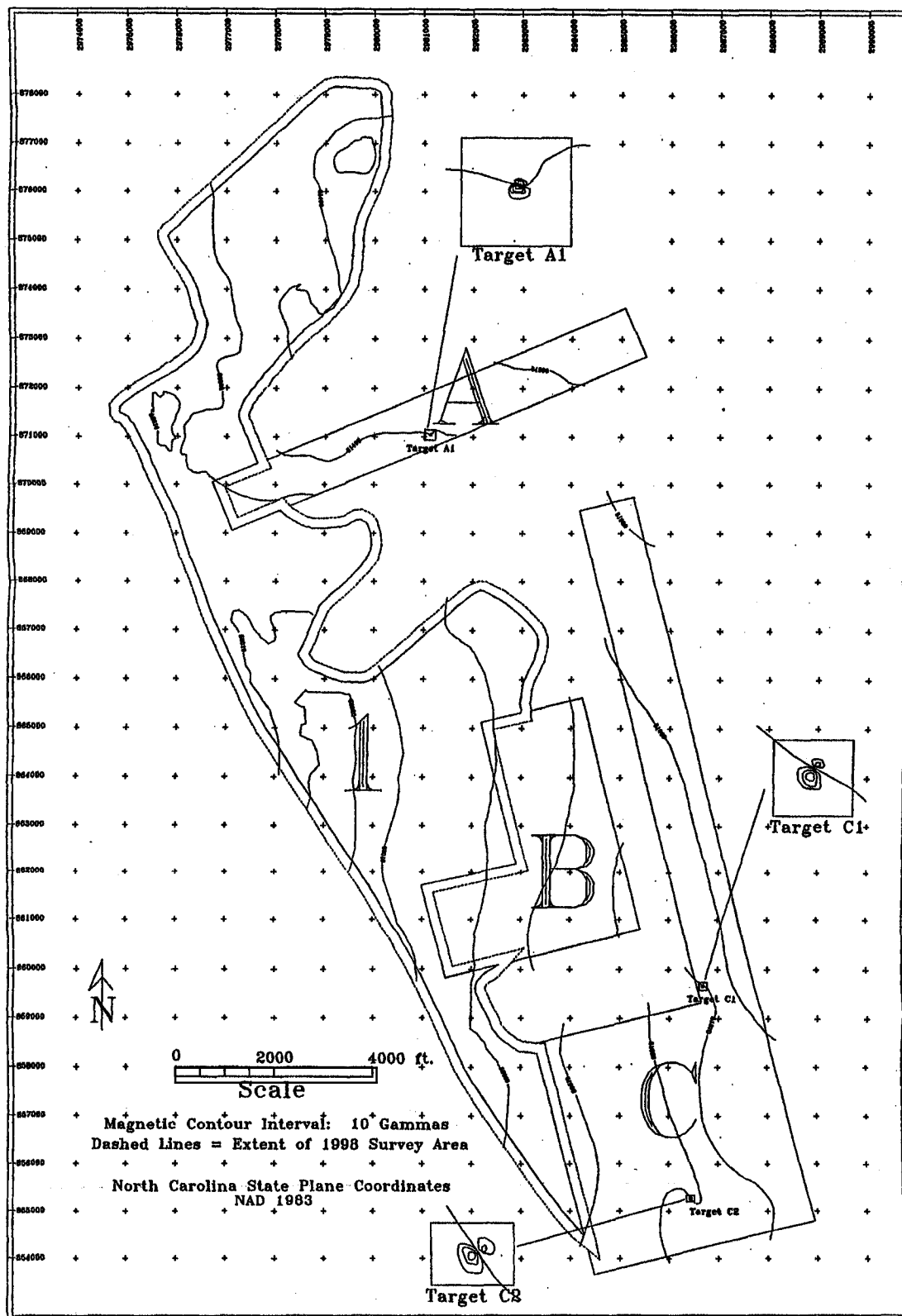


Figure 2. Magnetic Contour / Target Location Map: Areas A, B, C, and 1.

the magnetic anomaly. Iron or steel anchors, pipe, or even historic cannon with a mass of less than $\frac{1}{2}$ ton can create such an anomaly. Single isolated objects of modern or historic origin seldom have the potential to meet the criteria for nomination to the National Register of Historic Places. No additional investigations or mitigation is recommended (Figure 2).

BORROW AREA B

No magnetic or acoustic targets were identified in Borrow Area B (Figure 2).

BORROW AREA A

Target A1: N C State Plane Coordinates: N=871,034 E=2,981,065

Target A1 had a dipolar magnetic signature of 77 gammas at maximum intensity (Appendix A). The object or material creating the magnetic anomaly influenced an area over 4 one-second sample intervals. The relatively high intensity and short duration of the magnetic signature suggest a small, high-mass object. No acoustic signature corresponded to the magnetic anomaly. Iron or steel anchors, pipe, or even historic cannon with a mass of less than $\frac{1}{2}$ ton can create such an anomaly. Single objects of modern or historic origin seldom have the potential to meet the criteria for nomination to the National Register of Historic Places. No additional investigations or mitigation is recommended (Figure 2).

Beach Reconnaissance: 1998

No exposed shipwrecks were identified on the beach between Oregon Inlet and Kitty Hawk during the 1998 reconnaissance.

Remote Sensing Survey 1998

BORROW AREA 1

No magnetic or acoustic targets were identified in Borrow Area 1 (Figure 2).

BORROW AREA 2

No magnetic or acoustic targets were identified in Borrow Area 2 (Figure 3).

BORROW AREA 3

No magnetic or acoustic targets were identified in Borrow Area 3 (Figure 3).

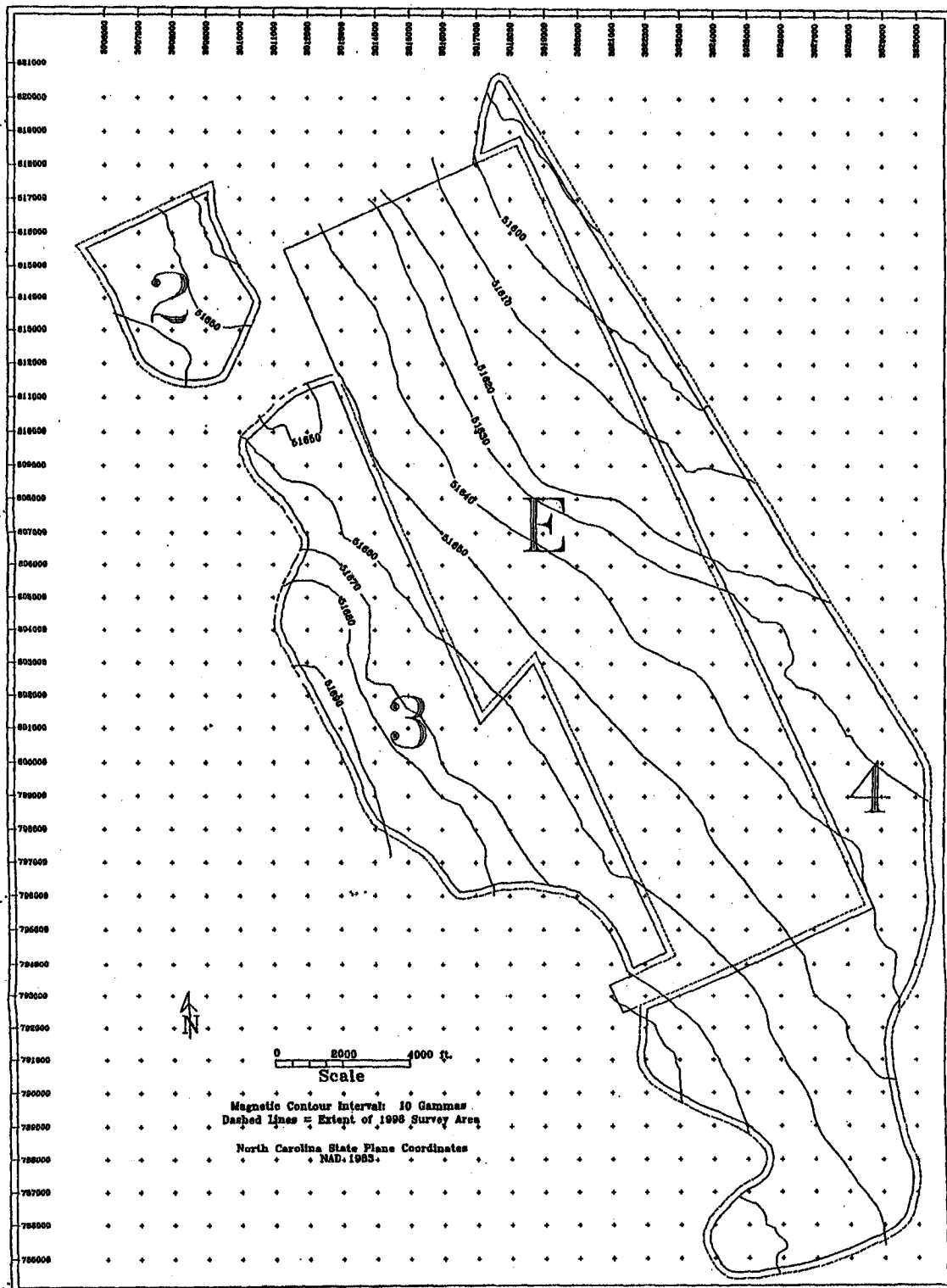
BORROW AREA 4

No magnetic or acoustic targets were identified in Borrow Area 4 (Figure 3).

RECOMMENDATIONS

The remote sensing survey identified three (3) single-source magnetic anomalies within the proposed borrow areas. No acoustic targets were identified. Because a significant number of vessels have been lost near the inlet, all of the magnetic anomalies have the potential to be associated with a historic shipwreck. However, single isolated objects of modern or historic origin seldom have the potential to meet the criteria for nomination to the National Register of Historic Places. Whereas all the anomalies identified by this investigation were single-source anomalies, no additional cultural resource investigations or restrictive actions are recommended.

During the 1997 and 1998 field season, no archaeological sites were observed on the beach within the proposed nourishment area. Near shore or beach wrecks are most frequently exposed during winter months or following storms. Because exposure of potential wrecks sites in the vicinity of the proposed beach re-nourishment project is a transient phenomenon, the North Carolina Department of Cultural Resources has recommended that additional investigations take place within a few months of project construction. These investigations will likely be conducted by State and U.S. Army Corps of Engineers Staff, or will be conducted under their supervision.



APPENDIX A: MAGNETIC TARGET SIGNATURES

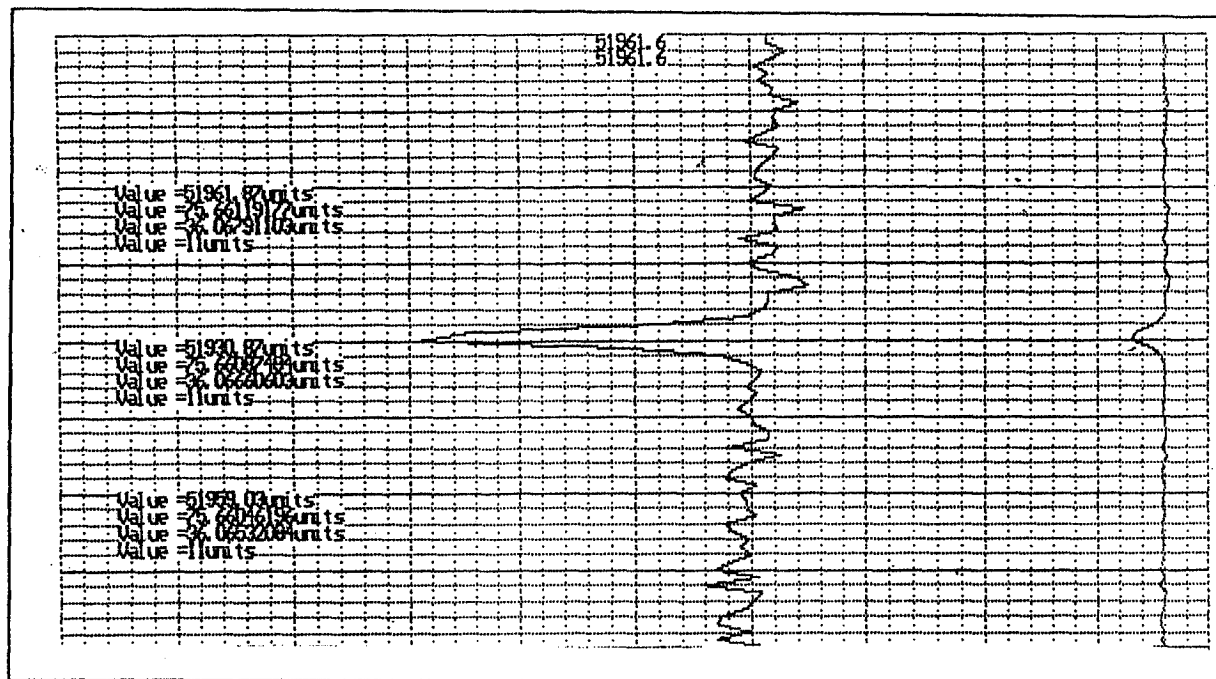


Figure 4. Magnetic Target Signature C1 / General Survey.

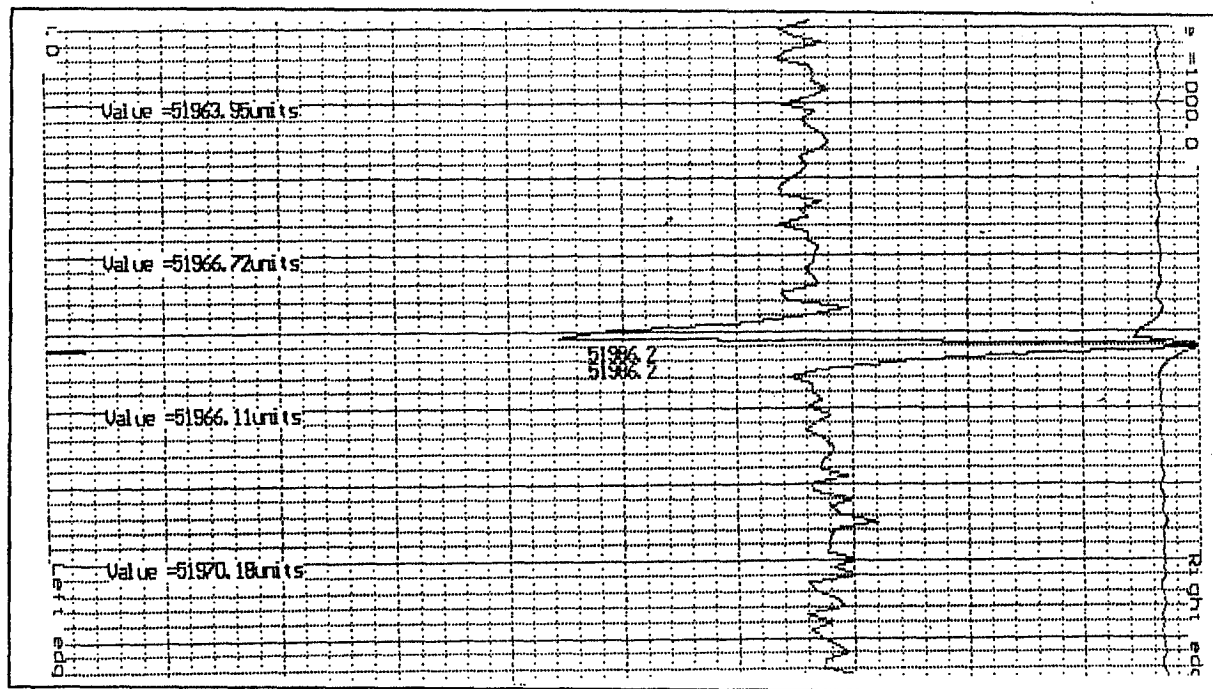


Figure 5. Magnetic Target Signature C1 / Relocation Survey.

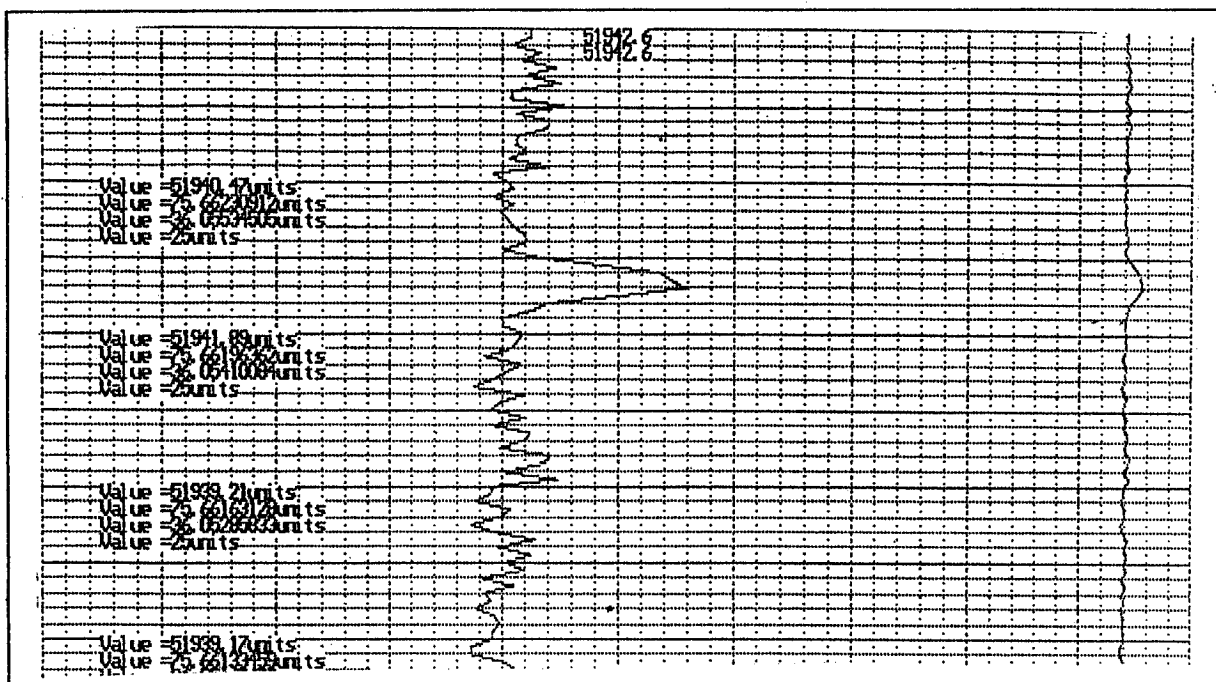


Figure 6. Magnetic Target Signature C2 / General Survey.

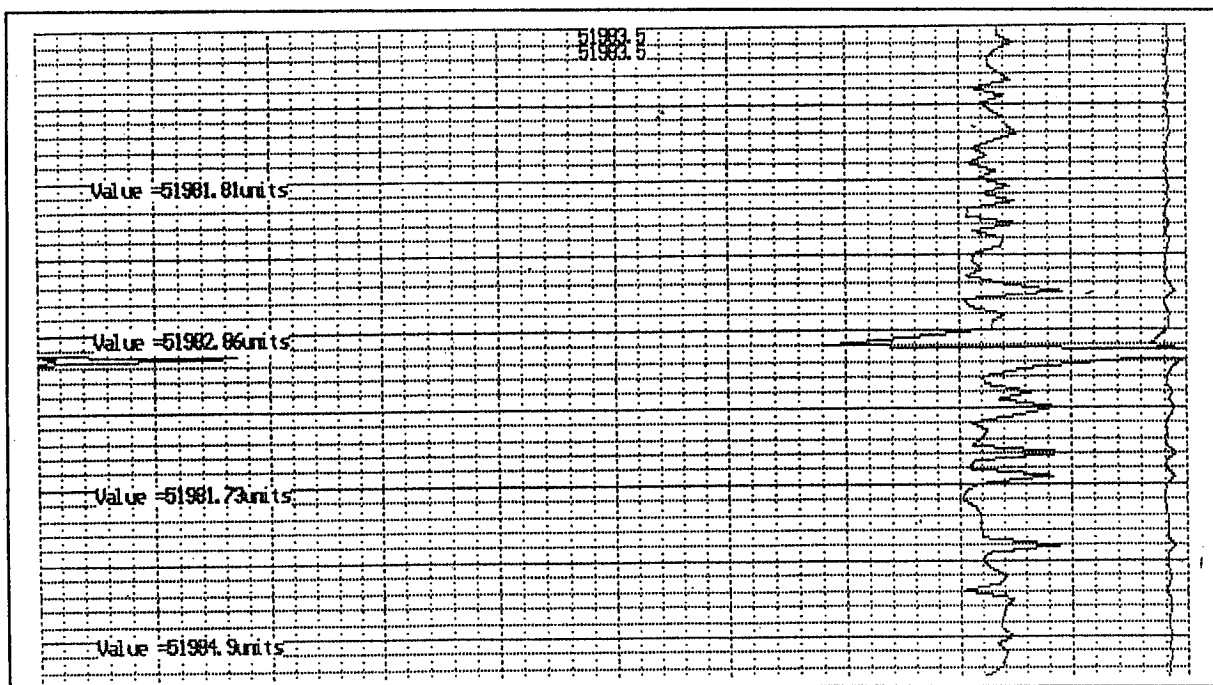


Figure 7. Magnetic Target Signature C2 / Relocation Survey.

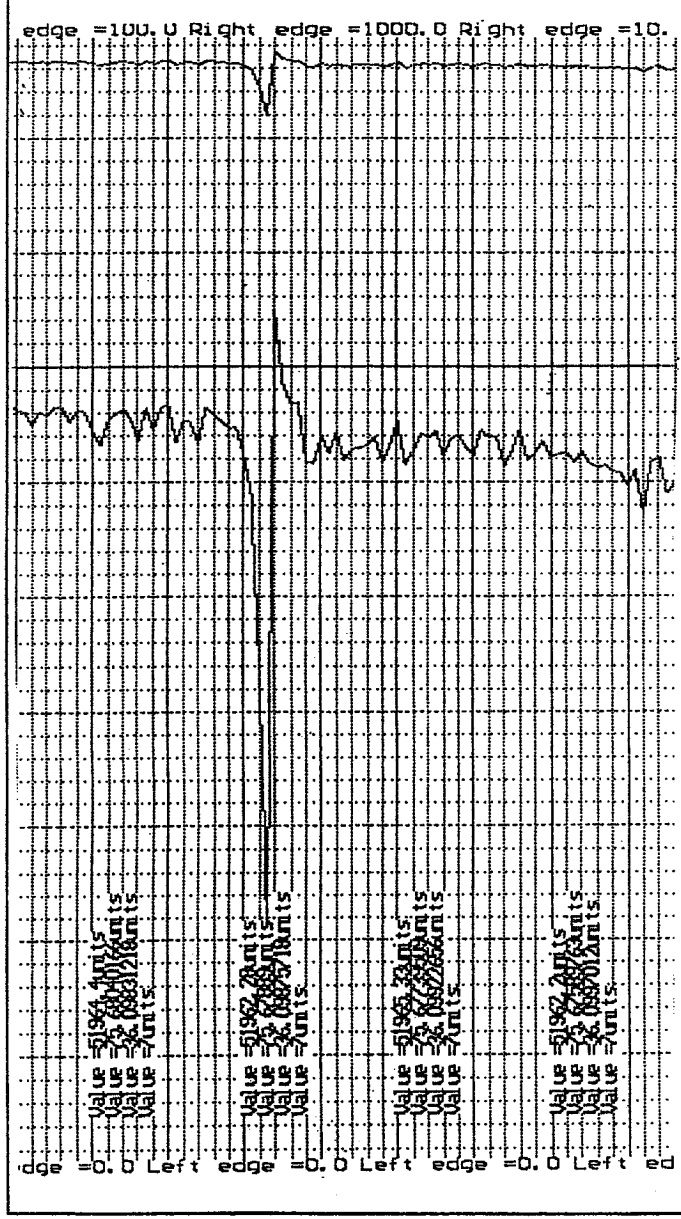


Figure 8. Magnetic Target Signature A1 / General Survey.

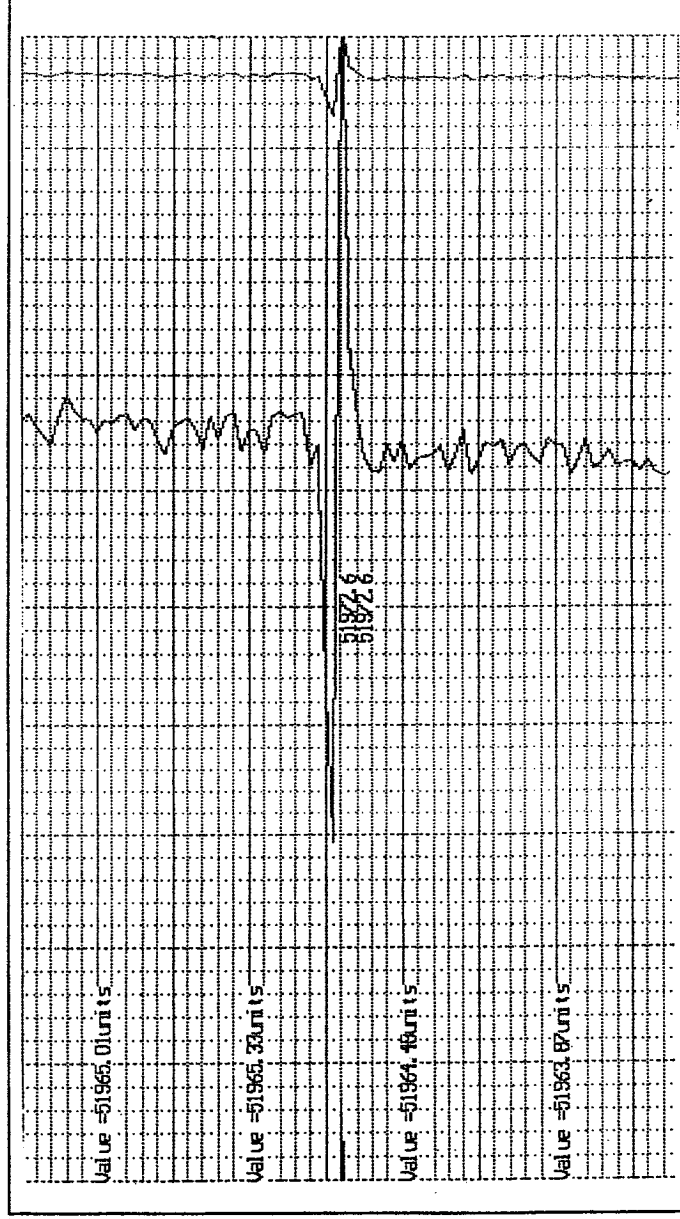


Figure 9. Magnetic Target Signature A1 / Relocation Survey.

APPENDIX B:
ANALYSIS OF SIDE-SCAN SONAR RECORDS
TO DESCRIBE BOTTOM TYPE WITHIN
BORROW AREAS A, B, C, E AND 1, 2, 3, 4

Analysis of Sonogram Records to Describe Bottom Type within Borrow Areas A, B, C, E and 1, 2, 3, 4

As part of the remote sensing survey for submerged cultural resources, investigators also reviewed side-scan sonar and hydrographic data to identify "hard bottom" that may support significant habitat for marine animals. A 500 kHz Klein System 2000 dual-frequency, digital, side-scan sonar and an Odom Hydrographics System Echotrac DF3200MKII depth recorder were used to conduct the remote sensing survey of Areas E, C, B, and A, in 1997. Each instrument was interfaced with a NAVSTAR™ Differential Global Positioning System. Acoustic data, with corresponding positioning data, was recorded continuously on paper and/or 8mm data tapes. The side-scan sonar was maintained at an altitude above the bottom (generally 20 to 30 feet), thereby providing the most detailed records. Hydrographic data was recorded entirely in HYPACK™ hydrographic survey and navigation software. Data was collected along parallel lines spaced at 100-foot intervals throughout each borrow area.

During the 1998 remote sensing survey, the following devices were used: 1) a Geometrics 881 cesium marine magnetometer; 2) a DF-1000 EdgeTech digital, dual-frequency (100-500 kHz) side-scan sonar with a 560D Processor; and 3) a JRC precision depth recorder was used to conduct the bottom survey. The same methods and line spacing utilized in 1997 were used in the 1998 survey.

No hard bottom or live bottom areas were identified within the expanded borrow areas. The entire bottom in each borrow area was identified as either soft migrating sand or compact sand. In general, deeper bottom was characterized by migrating sand shown on sonogram records as large sand waves, while shallow bottom generally was characterized by more compact sand shown as indistinct or small sand waves. Transition from compact to migrating sand generally corresponded to changes in depth. See Figures 4 and 5 for bottom surface maps of project areas.

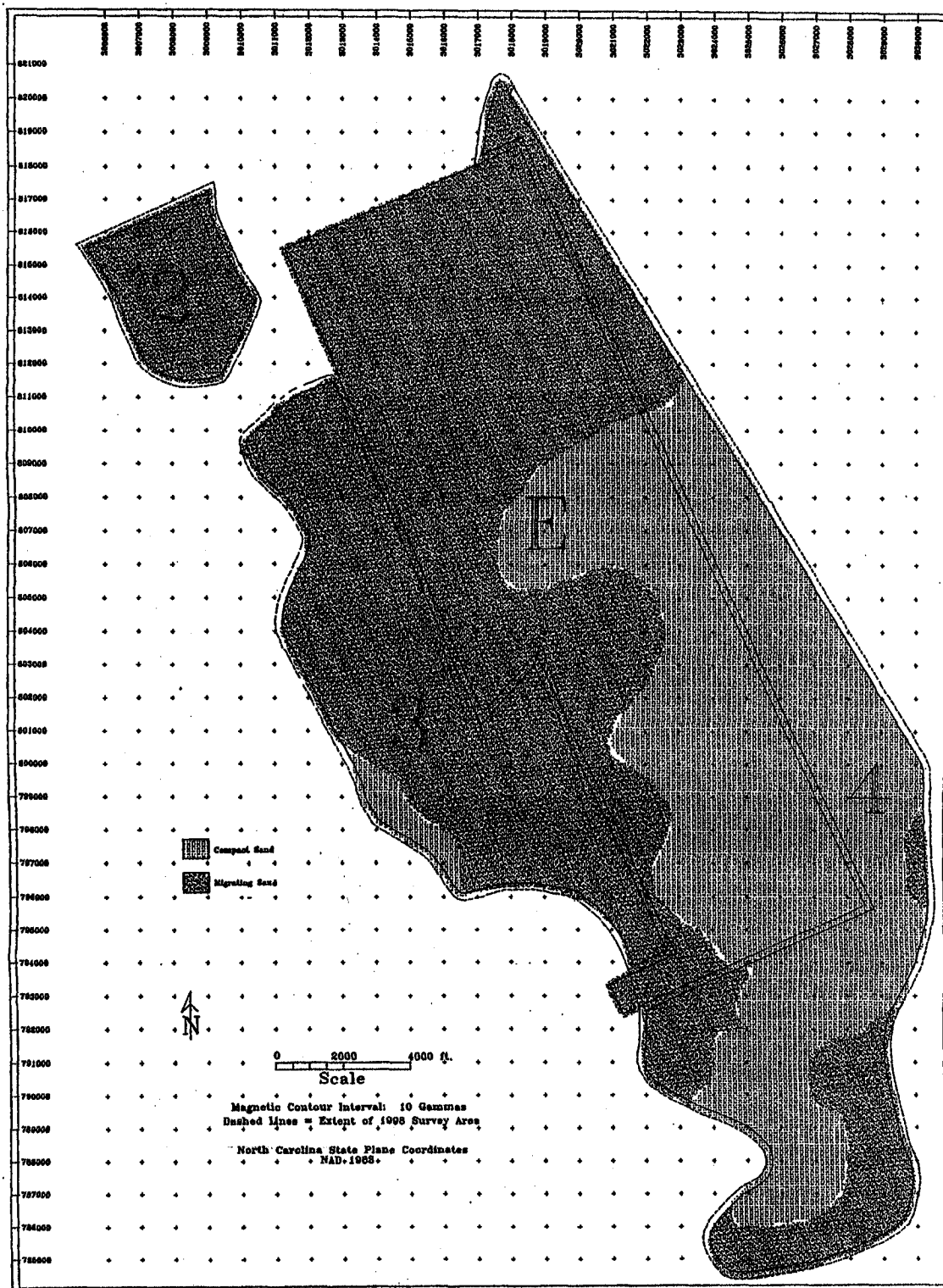


Figure 11. Bottom Classification Map of Borrow Areas 2, 3, 4, and E.