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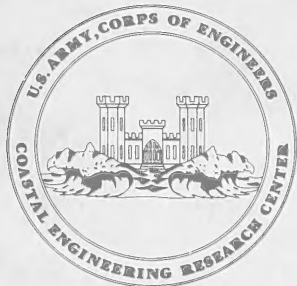
Beach Changes at Long Beach Island, New Jersey, 1962-73

by

Martin C. Miller, David G. Aubrey, and Joseph Karpen

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<p>Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. Most profile lines have shown an accretionary trend since 1962 with rates between 2.3 and 0.24 meter per year in spite of erosion estimates due to sea level rise on the order of 0.68 meter per year. A great deal of variability in profile line</p> <p>(continued)</p>		

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change takes place along the beach, increasing from north to south, due to the location of profile lines relative to structures and offshore linear shoals.. Detailed closely spaced profile lines taken over a year in a groin field near the north end of the island indicate littoral transport directions shift from north to south. Evidence of a littoral transport node near the north end of the groin field has been found. Net transport south of the node is toward the south, but the rate could not be established due to lack of adequate wave data. Profile line variability within groin cells shows that single profile lines are not sufficient to determine the net change within a cell. The design of future beach monitoring studies should consider coastal structures, offshore bathymetry, the method of analysis, and the scales of processes under study. A coastal storm in November 1968 moved the MSL back as much as 22 meters; however, the beach recovered without artificial measures. The offshore bathymetry shows a series of shoreface-connected linear shoals at several locations along the island. Limited data show that these have remained stable and that most beach variability takes place in water shallower than 3 meters.

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PREFACE


This report is one of a series describing the results of the U.S. Army Coastal Engineering Research Center (CERC) Beach Evaluation Program. One aspect of the program, and the subject of this report, is to provide basic engineering information on changes in the volume of sand on beaches above mean sea level, and on changes in shoreline position, as obtained from long-term beach survey projects. The 11-year study on Long Beach Island, New Jersey, was begun shortly after the catastrophic storm of 5 to 9 March 1962. The work was carried out under the CERC beach behavior and restoration program.

The report was prepared by Martin C. Miller (principal investigator), Science Applications, Inc. (SAI), Raleigh, North Carolina; David G. Aubrey, Woods Hole Oceanographic Institution, Massachusetts; and Joseph Karpen, SAI, under CERC contract No. DACW72-79-C-0020. Beach profile surveys were performed by the U.S. Army Engineer District, Philadelphia, under the supervision of H. Spies, except for a period in 1963 and 1964 when the work was contracted to Mauzy, Morrow and Associates of Lakewood, New Jersey. Visual wave data were contributed by P. Kief and H. Wilson. M.V. Fleming, T.J. Lawler, J. Buchanan, and B. Sims developed the CERC computer programs used for editing, analyzing, and displaying the beach profile data. Eigenfunction analysis programs were written by D. Aubrey. J.L. Miller, J.A. Tarnowski, and K.P. Zirkle assisted in data reduction. The authors acknowledge and appreciate the helpful review comments from G. Ashley, W. Birkemeier, A. DeWall, E. Hawley, B. LeMehaute, and C.L. Vincent.

A.E. DeWall was the contract monitor, under the general supervision of R.M. Sorensen, Chief, Coastal Processes and Structures Branch, CERC.

Comments on this publication are invited.

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TED E. BISHOP
Colonel, Corps of Engineers
Commander and Director

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CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	by	To obtain
inches	25.4	millimeters
	2.54	centimeters
square inches	6.452	square centimeters
cubic inches	16.39	cubic centimeters
feet	30.48	centimeters
	0.3048	meters
square feet	0.0929	square meters
cubic feet	0.0283	cubic meters
yards	0.9144	meters
square yards	0.836	square meters
cubic yards	0.7546	cubic meters
miles	1.6093	kilometers
square miles	259.0	hectares
knots	1.852	kilometers per hour
acres	0.4047	hectares
foot-pounds	1.3558	newton meters
millibars	1.0197×10^{-3}	kilograms per square centimeter
ounces	28.35	grams
pounds	453.6	grams
	0.4536	kilograms
ton, long	1.0160	metric tons
ton, short	0.9072	metric tons
degrees (angle)	0.01745	radians
Fahrenheit degrees	5/9	Celsius degrees or Kelvins ¹

¹To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use formula: $C = (5/9) (F - 32)$.

To obtain Kelvin (K) readings, use formula: $K = (5/9) (F - 32) + 273.15$.

BEACH CHANGES AT LONG BEACH ISLAND, NEW JERSEY, 1962-73

by
Martin C. Miller, David G. Aubrey, and Joseph Karpen

I. INTRODUCTION

Beach profile data from 32 profile stations along the oceanside of Long Beach Island, New Jersey, from Barnegat Inlet at the north end of the island to the Brigantine National Wildlife Refuge, about 4 kilometers north of Beach Haven Inlet, were collected from 1962 to 1973 by the U.S. Army Engineer District, Philadelphia, as part of the U.S. Army Coastal Engineering Research Center (CERC) Beach Evaluation Program (BEP) (formerly known as the Pilot Program for Improving Coastal Storm Warnings or the Storm Warning Program). The BEP was initiated after the Great East Coast Storm of March 1962 to observe variations on typical beaches in response to waves and tides of specific intensity and duration. Twelve beaches in the region hardest hit by that storm (Massachusetts to North Carolina) are under study in this program. The movement and the devastation of the March 1962 storm are described in U.S. Congress (1962), U.S. Army Engineer Division, North Atlantic (1963) and Bretschneider (1964). Other important applications of the BEP include use of the data in generating a predictive model of beach erosion (Galvin, 1969) and in providing representative values of basic engineering information for the planning and design of protective structures or remedial measures for stabilizing and maintaining beaches (Everts, 1973).

This report presents an analysis of the beach profile data collected at Long Beach Island, documents the locations of the profile lines, and evaluates the relationship of changes in beach elevation, sand volume, and shoreline position to changes in waves, water level, sediment size and supply, storm events, and coastal structures. The analysis includes a review of previous studies in the area to determine the relevant long-term trends in waves, winds, and tides.

Variability in the shape of the beach profile was analyzed using the empirical eigenfunction technique as well as by other standard methods performed at CERC. Changes were evaluated on three time scales: (a) short-term changes caused by individual storms or events occurring between surveys; (b) seasonal changes observed over the typical 3-month season; and (c) long-term changes that occur yearly. Spatial variability in both the shore-parallel and shore-normal directions was analyzed to determine the effects of coastal structures and systematic changes caused by variable wave refraction and other factors. Particular emphasis has been given to the effects of storms and to the evaluation of the closely spaced profile data obtained within the vicinity of a selected groin field.

II. THE STUDY AREA

1. Geography and Geomorphology.

Long Beach Island (Fig. 1) is a barrier island located along the coast of southern New Jersey. It separates the Atlantic Ocean and three shallow bays and associated salt marsh areas, each of which extends along approximately equal

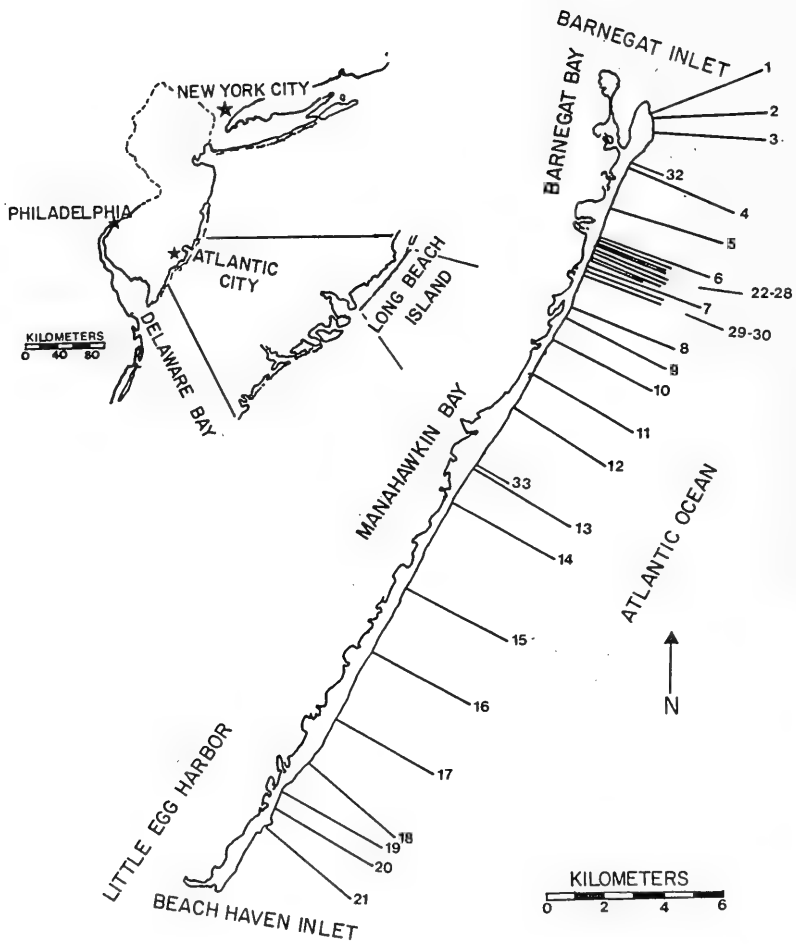


Figure 1. Profile line locations at Long Beach Island, New Jersey (after DeWall, Pritchett, and Galvin, 1977; Everts and Czerniak, 1977).

thirds on the island's western side. The bays, from north to south, are Barnegat Bay, Manhawk Bay, and Little Egg Harbor. No major rivers contribute to the bay waters. These are connected to the ocean through Barnegat Inlet at the north end and Beach Haven Inlet at the south end. Both inlets are areas of active sediment transport. The island has an east-southeast exposure of 32 kilometers of nearly straight sand beach consisting of quartz sand with median diameter of 0.35 millimeter (Ramsey and Galvin, 1977). Tides are semidiurnal with the normal range varying from 0.88 to 1.52 meters at neap and spring tides, respectively. Tide data from the recording station at Atlantic City have been nearly continuous since 1911. An analysis of water levels at Atlantic City from 1912 to 1953 indicates a rise in sea level at an average rate of 42.7 centimeters per 100 years. The trend appears to continue during the period 1954-65 (U.S. Army Engineer District, Philadelphia, 1974). The beach area from the Barnegat lighthouse to the Brigantine National Wildlife Refuge is heavily structured with 110 groins, 83 of which have been built or rebuilt during the period 1962-73 (Everts and Czerniak, 1977). "Critical" erosion is said to exist along this stretch of beach (U.S. Army Engineer District, Philadelphia, 1974). The net sediment transport is toward the south (Caldwell, 1966). The island is narrow and of generally low elevation with a nearly continuous sand dune (5 to 8 meters above MLW) extending along the ocean front. Most development has taken place landward of the dune, but some houses have been built directly on the dune crest. Plantings of American beachgrass, drift fences, and limited boardwalk beach access sites have been established to help preserve the remaining undeveloped dunes (Fig. 2). Though the beaches and dunes are active, the basic shape has varied little over the years from 1955 to 1965 (U.S. Army Engineer District, Philadelphia, 1974). The dune slope is about 1:5 while the beach berm, from the base of the dune to MLW, slopes about 1:15. The foreshore slope increases somewhat during the winter to 1:12 (Birkemeier, 1979). The only access to the mainland is provided by U.S. Highway 72, along a 10-kilometer causeway. Because it is relatively low lying and heavily populated, Long Beach Island may suffer extensive physical and economic damage during storms.

2. Littoral Processes.

The New Jersey barrier beaches have been periodically surveyed since 1840. Analyses of the beach profile data as well as measurements of nearshore bathymetry and contours of the 1.83-, 3.66-, and 5.49-meter isobaths are presented in Beach Erosion Board (1958) and U.S. Army Engineer District, Philadelphia (1974) along with a summary of the general location of the high water shoreline from 1840 to 1965. The studies indicate that the beaches at Long Beach Island have undergone periods of erosion and accretion that varied in magnitude and conclude that recession has been the general trend along the entire island. Barnegat Inlet, at the northern end of the island, is stabilized by a pair of converging stone jetties which were in various stages of construction from 1926 to 1942 (Fig. 3). Though sediment transport is still extremely active in the inlet, the jetties have stopped the southerly migration of this end of the island, which averaged 10 meters per year during the period 1840 to 1936. The history of jetty construction and the problems associated with inlet stabilization have been reviewed by Caccese and Spies (1977). The stone jetties are the site of a large ebb tidal delta asymmetric toward the south. A large sand wedge, which has accumulated along the north jetty at the south end of Island Beach State Park, provides evidence of net southerly transport. Waves refracting around the ebb tidal delta cause a local area of northerly transport under most conditions immediately south of the south jetty. Winds from the east and southeast



a. View looking south from profile line 1, showing extensive sand fencing, groins, and development.



b. View south from profile line 5, showing development on the dunes and the line of wave drifted material at the base of the dune scarp.

Figure 2. Views of the different techniques used to preserve the undeveloped dunes on Long Beach Island.



- c. Typical beach access through dunes at profile line 15. Such locations were washover sites during the March 1962 storm.



- d. View north from profile line 19, showing low dunes in contrast to the northern end of the island.

Figure 2. Views of the different techniques used to preserve the undeveloped dunes on Long Beach Island.--Continued

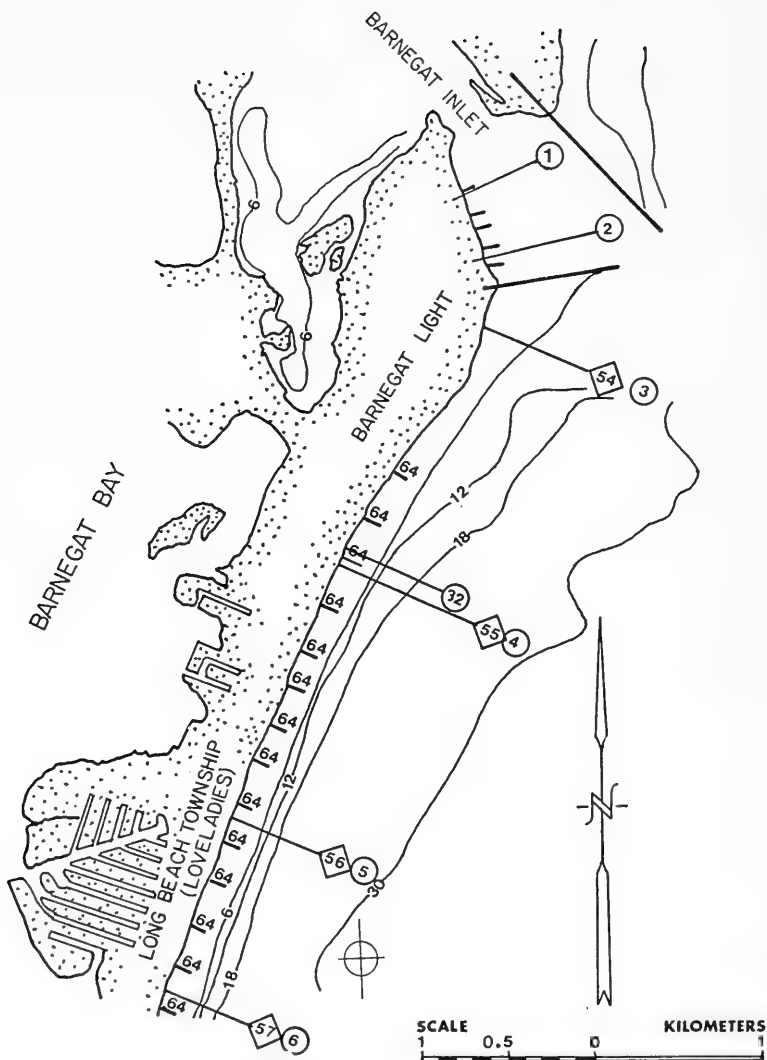


Figure 3. Air photo of Barnegat Inlet and converging jetties. Note the confused wave refraction over the shoal south of the south jetty.

cause northerly transport on both sides of the inlet. A nodal zone, north of which transport is predominantly northerly and south of which it is southerly, has been postulated to exist north of Barnegat Inlet based on the relative orientations of the shoreline and the prevailing direction of wave approach (U.S. Army Engineer District, Philadelphia, 1974). Beach Haven Inlet, at the southern end of the island, is unstructured and remains extremely active with shifting tidal channels and bar formations occasionally blocking the inlet completely (U.S. Army Engineer District, Philadelphia, 1974). The shoreface morphology of the southern end of Long Beach Island was studied by Goldsmith, Farrell, and Goldsmith (1974) in an effort to document the dynamic nature of the shoreface system. Beach profiles collected over a 1-year period were used to calculate changes in sand volume per unit length of beach. The authors concluded that, despite large biweekly variations, there was a lack of total net volumetric change at many of the measured profiles. In many cases, the biweekly fluctuations exceeded the net annual changes over the study period. They also concluded that, unlike most west coast beaches, the Long Beach Island profiles exhibited no seasonal cycle of erosion and recovery. There were, in fact, cases in which net volumetric change occurred in opposite directions at adjacent profiles. Other studies summarizing beach changes, inlet processes over various time scales, as well as wave and climate conditions during the BEP study include Plusquellic (1966), Charlesworth (1968), Darling (1968), Halsey (1968), and Dames and Moore (1973, 1974). Bretschneider (1964) provided a detailed description of processes occurring along the island during the March 1962 storm. The net sand transport along the beaches of 115,000 cubic meters per year toward the south was estimated from dredging records of Barnegat Inlet (Beach Erosion Board, 1958; U.S. Army, Corps of Engineers, Coastal Engineering Research Center, 1977). Changes to the strand of beaches between the two inlets during the 1963 to 1973 study period have been the subject of two additional investigations--one dealing with the short-term alterations caused by a specific storm (DeWall, Pritchett and Galvin, 1977), the other an evaluation of some long-term changes (Everts and Czerniak, 1977). A major storm event affecting the beaches after the termination of the BEP measurement program was reported in Birkemeier (1979).

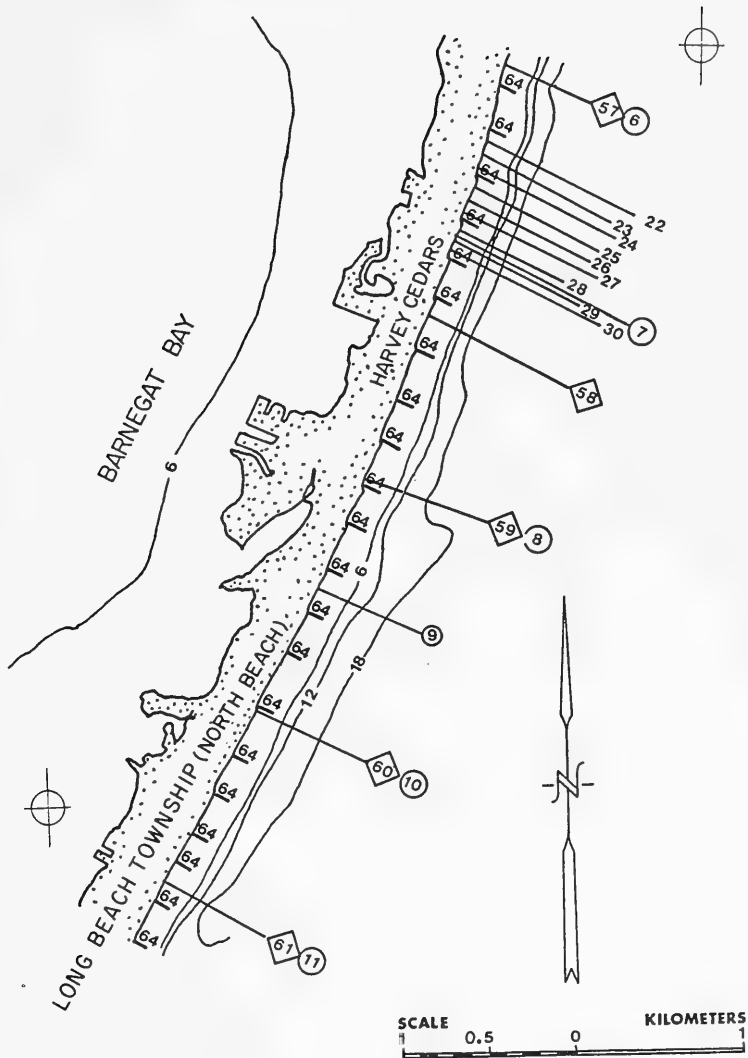
3. Offshore Bathymetry.

Fields of shoaling features are present on the Inner Continental Shelf regions from Long Island to Florida (Duane, et al., 1972). These shoals are linear or arcuate, isolated, or associated with other features such as inlets. Three shoreface-connected linear shoals are easily identified along Long Beach Island from soundings taken in 1937, 1955, 1963, and 1965. Other, less well-developed features are also present (Fig. 4). The shape and position of the shoals appear stable. The features off of the island are typical of similar shoals near Fenwick Island, Maryland, and other barrier island localities farther south. The Long Beach Island shoals open toward the north, making an angle between 20° and 30° with the shoreline. Peahala Ridge, the best developed of the three, is attached to the shore at about Beach Haven and extends at an angle of 20° to the shoreline for a distance of 5.6 kilometers measured along the axis to the 10-meter contour. The mean axis slope is 1:600 and is fairly constant while the side slopes are 1:100. The method of formation of these ridges is presently undetermined. The relatively constant angle to the shoreline in spite of the shoreline orientation indicates they are generated by nearshore hydrodynamic processes. Subbottom seismic studies and test borings in some of the ridges show the shoreface-connected shoals are



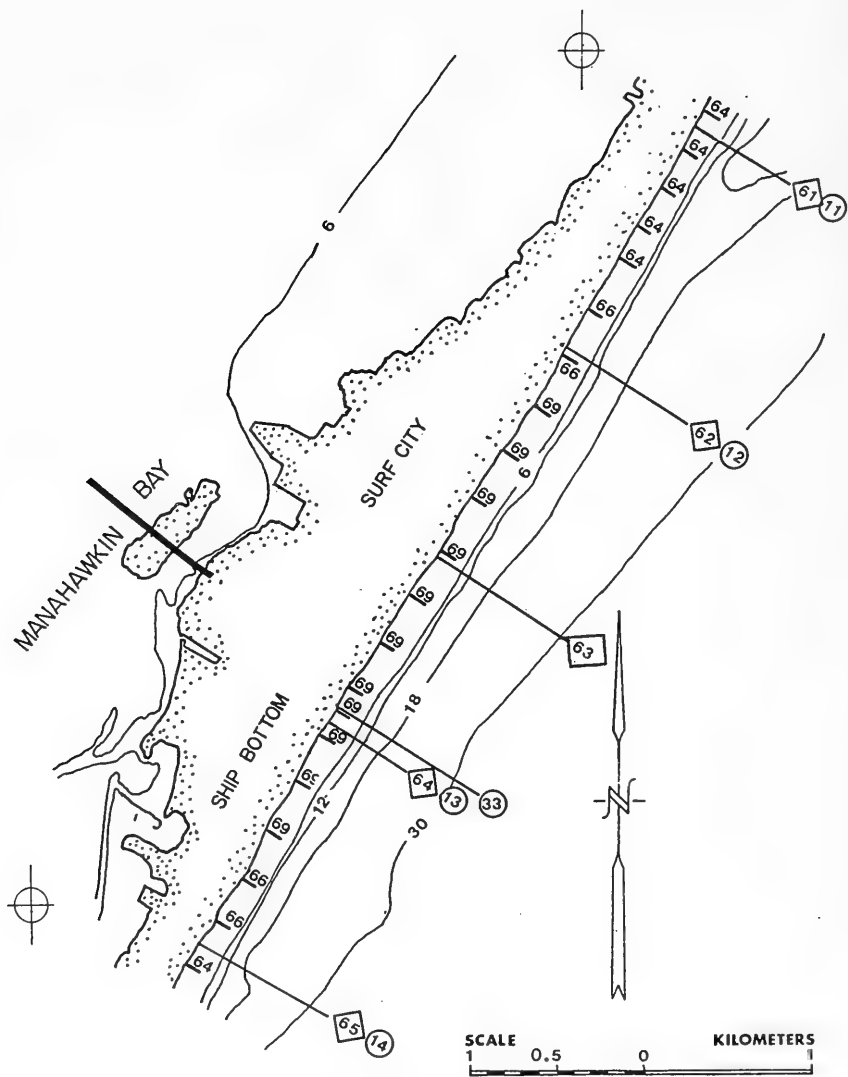
a. Barnegat Light to Loveladies (groins inside jetties constructed before 1960).

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).



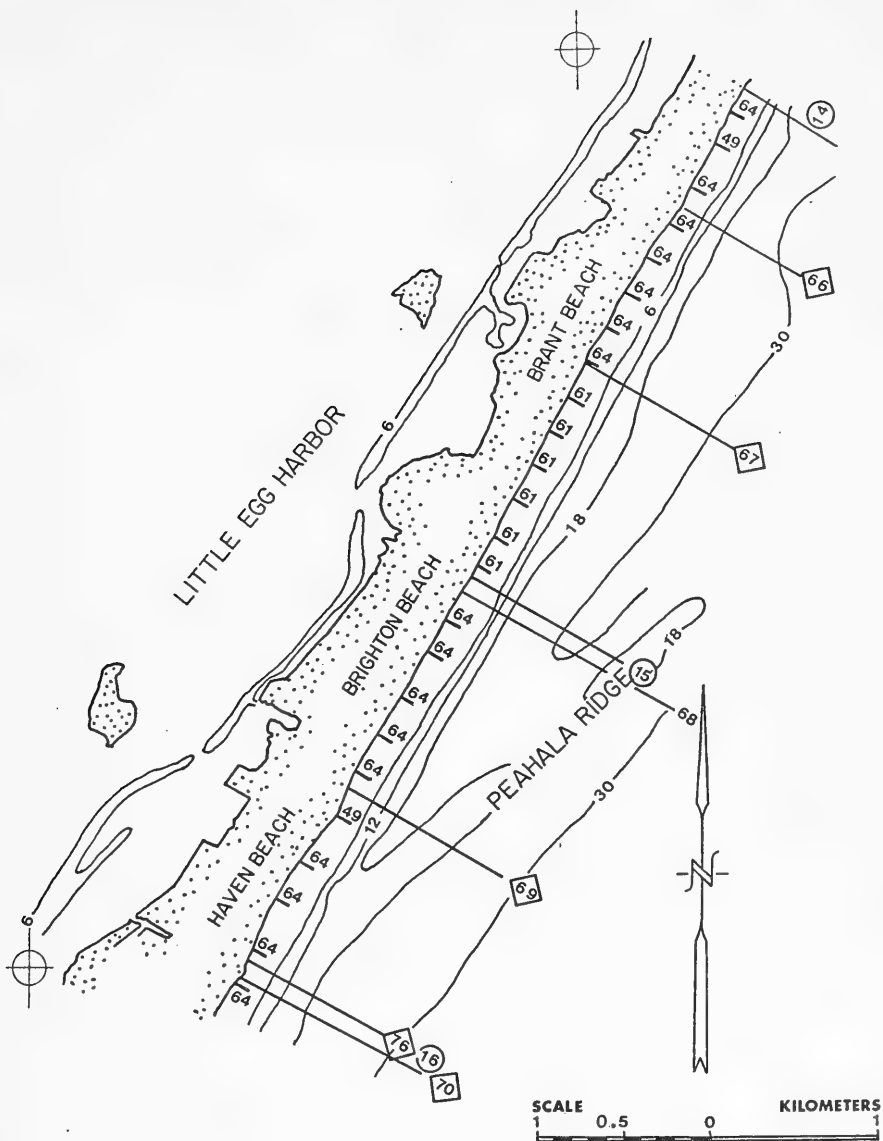
b. Harvey Cedars to North Beach (includes site of groin field studies).

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



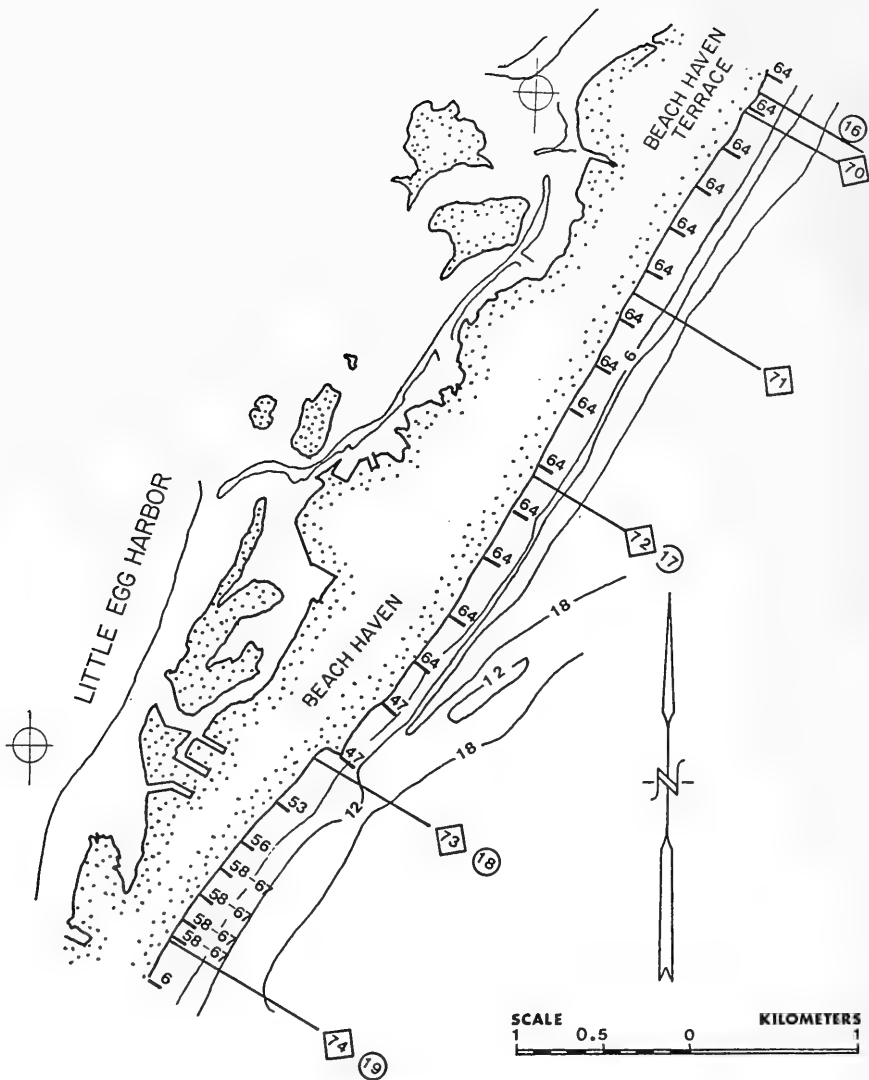
c. North Beach to Ship Bottom.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



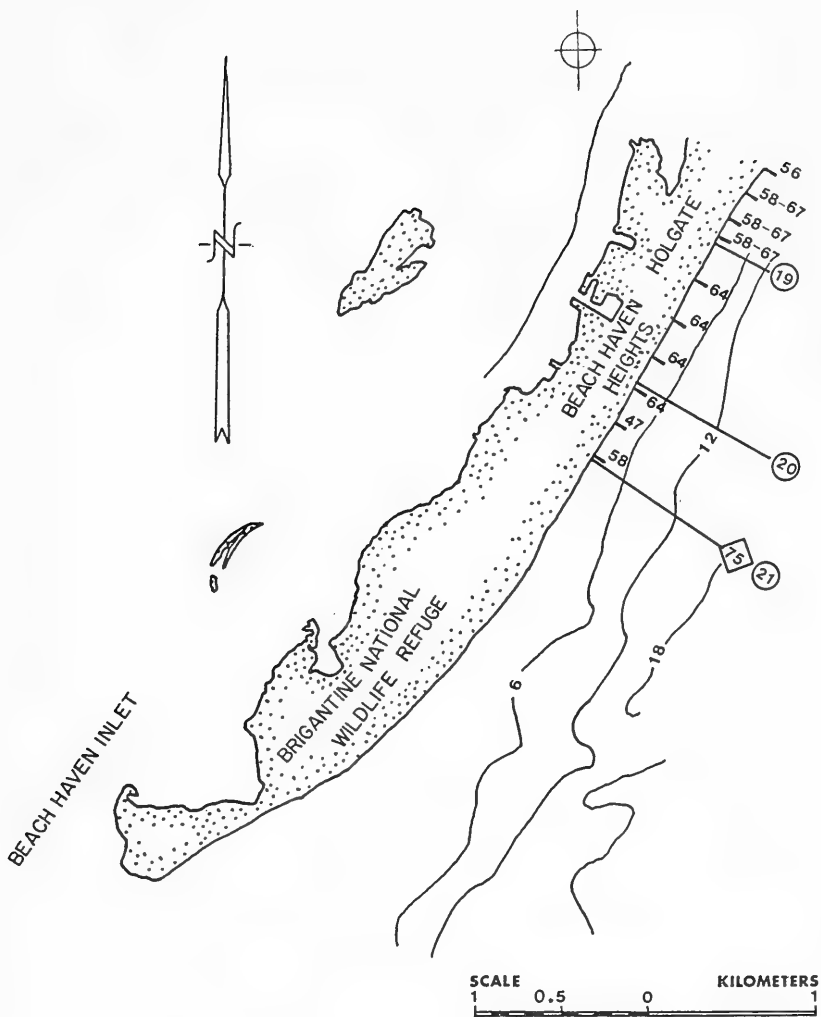
d. Brant Beach to Haven Beach.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



e. Beach Haven Terrace to Beach Haven.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



f. Holgate to Brigantine National Wildlife Refuge.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued

not of structural origin. Similar linear shoals found in deeper water may be relict features formed during a lower stand of sea level. The role of shore-face-connected shoals in modifying the nearshore circulation and wave regime is unknown though it may be considerable.

III. METHODS

1. Profile Lines and Monumentation.

Thirty-two profile lines, extending from Barnegat Light to just south of Beach Haven, were surveyed along Long Beach Island. The location of the profile lines and their proximity to 110 groins on the island are shown in Figure 4. Locations of the groins were carefully checked with recent air photos and Corps of Engineers records (U.S. Army Engineer District, Philadelphia, 1974). Each groin in Figure 4 is indicated by the last two digits of the year of its construction. The survey periods and the number of measurements per profile line are given in Table 1. Profile lines 1 to 21 and 32 were established at the beginning of the period and, except as noted, were continued through the entire program. Profile line 4 was established just south of the groin shown in Figure 4. Profile measurements were taken from September 1962 to January 1966 with those readings from the north side of the groin referred to as profile line 32 and those to the south as profile line 4. Profile line 32 was discontinued after January 1966, and profile line 4 was standardized at a position 15 meters south of the groin. Profile line 13 was relocated one block northward (about 200 meters) in September 1969 and renumbered profile line 33 when a rock groin was constructed along the original profile line. In August 1972, a series of closely spaced profile lines was established among successive groins between the communities of Loveladies and Harvey Cedars to observe the influence of the structures.

a. Survey Procedures. The original profile lines were intended to be equally spaced. However, spacing was modified to place profile lines along a more representative section of beach, avoid structures, provide accessibility, or provide information of special interest. As shown in Table 1, spacing, except in the special groin field study area, varied from 318.2 to 3,285.7 meters. Profile measurements were taken by surveying crews from the U.S. Army Engineer District, Philadelphia. Horizontal control for the stations consisted of a monument at or near each profile line with references tied to cultural features such as houses, telephone poles, etc., and third-order survey control providing state-plane and geodetic coordinates of the monument. Vertical control consisted of a third-order elevation of the top of the monument with respect to sea level datum (Jacobs, 1978). The documentation of the location of each profile monument referred to the New Jersey Transverse Mercator as well as the azimuth of the line is given in Appendix A.

The surveying crews measured the profile line using a level and tape technique. A reference elevation was established at a fixed object such as the top of a log barricade, the foot spike on a telephone pole, or nail markers driven into the roadway.

The survey proceeded seaward, approximately perpendicular to the shoreline, from the reference along the preselected azimuth, maintained by alinement of two separated, fixed objects in the manner of a navigational range. Readings

Table 1. Summary of profile lines and surveys.

Profile line ¹	Distance to next profile (m)	Survey period		Total surveys	Remarks
		First reading	Last reading		
1	363.9	26 Sept. 62	12 June 73	99	
2	318.2	26 Sept. 62	12 June 73	99	
3	1,580.7	26 Sept. 62	12 June 73	98	
32		26 Sept. 62	25 Jan. 66	23	Discontinued
4	1,620.9	26 Sept. 62	12 June 73	89	
5 ²	1,118.0	26 Sept. 62	12 June 73	97	
6	433.4	26 Sept. 62	12 June 73	99	
22	88.1	29 Aug. 72	11 June 73	10	Groin field
23	88.4	29 Aug. 72	11 June 73	10	Groin field
24	89.6	29 Aug. 72	11 June 73	10	Groin field
25	89.9	29 Aug. 72	11 June 73	10	Groin field
26	89.9	29 Aug. 72	11 June 73	10	Groin field
27	86.6	29 Aug. 72	11 June 73	10	Groin field
28	44.5	29 Aug. 72	11 June 73	10	Groin field
7	39.9	26 Sept. 62	11 June 73	99	
29	81.1	29 Aug. 72	11 June 73	10	Groin field
30	1,465.5	29 Aug. 72	11 June 73	10	Groin field
8 ²	619.0	26 Sept. 62	12 June 73	99	
9	823.0	26 Sept. 62	12 June 73	90	
10	1,097.6	26 Sept. 62	12 June 73	99	
11	1,499.3	26 Sept. 62	12 June 73	99	
12	2,595.1	26 Sept. 62	12 June 73	99	
13 ³	1,526.1	26 Sept. 62	28 May 69	64	Relocated to line 33
33		24 Sept. 69	12 June 73	37	Replaced line 13
14	3,285.7	2 Oct. 62	12 June 73	98	
15	2,610.9	2 Oct. 62	12 June 73	98	
16 ³	2,646.9	2 Oct. 62	12 June 73	99	
17	2,006.5	2 Oct. 62	12 June 73	91	
18	1,374.6	2 Oct. 62	12 June 73	98	
19	954.3	2 Oct. 62	12 June 73	98	
20 ⁴	548.6	2 Oct. 62	12 June 73	98	
21		2 Oct. 62	12 June 73	98	
Total				2,158	

¹No record of profile line 31.²Monument offset from actual profile line.³Pipe profile (Urban and Galvin, 1969).⁴Chart measurement.

were taken every 15 meters or at each break in the beach slope, then continued to -0.6 meter MSL by the rodman. Surveys were timed to coincide with low tide to extend to that depth. Occasionally, however, extreme water levels or surf conditions prohibited seaward extension of the profiles. Crews were generally able to complete three profile lines per hour so the entire Long Beach Island survey (30 lines) was planned for several days.

Readings were taken to the nearest 30.0 centimeters in the horizontal and 3.0 centimeters in the vertical. It was occasionally necessary to move the level, and care was taken to document the elevation and new location. Survey lines were not closed except during the last year of the study.

Pipes were placed along profile lines 13 and 16 to test this method of measuring beach elevation. A 6.4-meter section of 3.8-centimeter inside-diameter iron pipe was marked in 15.2-centimeter sections and jettted 4.0 meters into the sand. These were placed every 15.2 meters along the selected profile lines and their position and elevation established by standard surveying methods. Weekly sand level readings were taken by local observers during the period from 6 December 1967 to 1 May 1968. Detailed results of the pipe survey are given in Urban and Galvin (1969). This short study showed that sand level variations of more than a meter occurred on the beach face during the winter storms of 1968. Measurements were not continued long enough to observe variations during the summer months nor was the study designed to provide transport rates and direction.

b. Survey Frequency. Profile measurement intervals were begun biweekly; however, successive surveyed profiles changed little and were of limited engineering significance. The interval was increased to monthly and further extended later in the program. The distributions of seasonal measurements by month and year are shown in Figures 5 and 6, respectively. Unscheduled surveys were made shortly before and after storms, when possible, to measure the effects of individual events. Documented coastal storms occurring during the 1962-73 study period are listed in Table 2. The frequency of surveys relative to storms is shown in Appendix B. No surveys were taken during the summer seasons of 1965 to 1969 since changes were considered too small to be of any meaning. This gap in the data set may have consequences for later statistical analysis of the temporal variability. Beach measurements taken in the groin field (profile lines 22 to 30) consist of only 10 surveys per profile line, none of which were taken during May, July, September, or November.

Survey data were recorded in field notebooks. Computations of range and elevation were made by the noteman in the field and were doublechecked by another member of the survey team. The detailed procedures of transcriptions to coding forms for computer processing are given in DeWall (1979, p. 15). All data were meticulously hand-checked and spurious points were either corrected or discarded. Profile data are shown in tabulated form in Appendix C.

2. Profile Analysis.

Each profile was analyzed by CERC and computer plots generated for (a) MSL position (App. B), (b) above MSL change in unit volume between surveys (App.D), and (c) profile envelopes (App. E). All profile changes are referred to the conditions existing on the "initial survey date." The distance-elevation

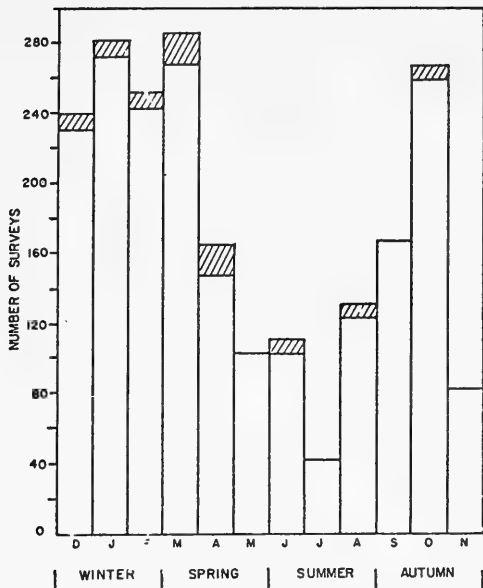


Figure 5. Distribution of profile line surveys by month and season. Cross hatching indicates survey of profile lines 22 to 30.

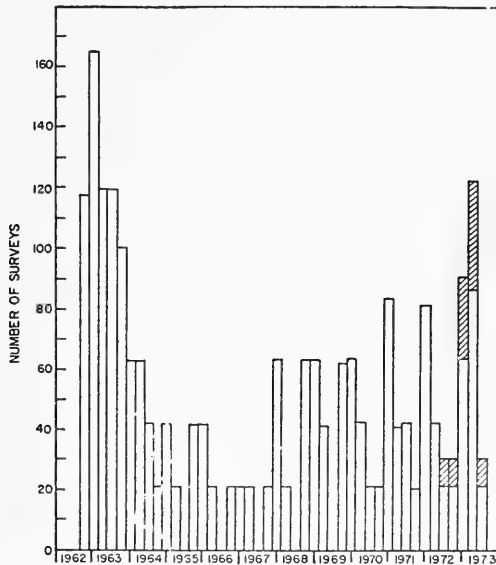


Figure 6. Distribution of profile line surveys by year and season. Cross hatching indicates survey of profile lines 22 to 30.

Table 2. Documented coastal storms occurring during period of BEP surveys, September 1962 - June 1973.

Year	Storm date	Source ¹	Survey Dates		Volume Change (m ³ /m)		Remarks
			Before	After	Mean	Variance	
1962	28 Sept.	1	26 Sept.	28 Sept.	-28.77	9.38	Northeaster coastal erosion Coastal storm. "Classic Northeaster"
	03 Nov.	1,5	29 Oct.	08 Nov.	-10.07	14.12	
	10 Nov.	1	08 Nov.	10 Dec.	1.03	17.29	
	27 Nov.	1	08 Nov.	10 Dec.	1.03	17.29	Dune erosion
1963	16-30 Oct.	2,5	10 Oct.	25 Oct.	6.79	13.30	Hurricane GINNY, 19-22 Oct. in area 1.40-m maximum tide, Atlantic City 1.71-m maximum tide, Sandy Hook
	03 Nov.	1,4	25 Oct.	15 Nov.	- 5.39	18.05	
	10 Nov.	4	25 Oct.	15 Nov.	- 5.39	18.05	
	29-30 Nov. 08 Dec.	5 1	15 Nov. 15 Nov.	27 Dec. 27 Dec.	10.73 10.73	18.05 16.79	
1964	12 Jan.	1,3,4,5	27 Dec.	15 Jan.	-24.14	18.48	Blizzard, 1.40-m maximum tide, Sandy Hook Hurricane ETHEL Hurricane GLADYS 1.37-m maximum, Atlantic City
	04-16 Sept.	2	29 Aug.	24 Sept.	- 2.33	18.72	
	13-24 Sept.	1,2	29 Aug.	24 Sept.	- 2.33	18.72	
	07 Nov.	4	24 Sept.	01 Dec.	3.24	19.29	
1965	17 Jan.	4	01 Dec.	19 Jan.	- 4.75	21.90	1.37-m maximum, Atlantic City 1.52-m maximum, Sandy Hook
	15 Feb.	1	19 Jan.	27 Apr.	8.64	22.39	
	27 May	1	27 Apr.	07 Sept.	5.57	19.89	
	11-18 June 05 July	2 1	27 Apr. 27 Apr.	07 Sept. 07 Sept.	5.57 5.57	19.89 19.89	
1966	23 Jan.	1,4	22 Dec.	25 Jan.	-15.67	15.73	1.68-m maximum, Atlantic City 2.04-m maximum, Sandy Hook rain, snow, wind, erosion Hurricane ALMA
	04-14 June 24 Dec.	2 1	21 Mar. 22 Sept.	22 Sept. 16 Jan.	1.87 8.72	20.88 16.33	
	07 Feb.	1	16 Jan.	05 May	- 9.37	19.30	
1967	27 April	4	16 Jan.	05 May	- 9.37	19.30	Heavy snow 1.52-m maximum, Sandy Hook 1.43-m maximum, Atlantic City Hurricane DORIA
	24 May	4	05 May	20 Sept.	11.10	24.27	
	10-17 Sept.	1,3,4,5	05 May	20 Sept.	11.10	24.27	
1968	07 Jan.	5	18 Dec.	17 Jan.	- 3.95	17.56	Insignificant storms
	14 Jan	5	18 Dec.	17 Jan.	- 3.95	17.56	
	25 Jan	5	17 Jan.	27 Feb.	- 2.74	18.19	
	08 Feb.	5	17 Jan.	27 Feb.	- 2.74	18.19	
	25 Feb	5	17 Jan.	27 Feb.	- 2.74	18.19	
	01 Mar.	1,3,5	27 Feb.	27 Mar.	3.76	18.71	
	13 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	18 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	23 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	05 Apr.	5	27 Mar	09 Oct.	12.98	22.53	
1968	17-26 June	2	27 Mar	09 Oct.	12.98	22.53	Hurricane BRENDA Hurricane GLADYS 1.43-m maximum, Sandy Hook Wind, rain, snow, erosion 1.37-m maximum, Atlantic City
	13-21 Oct.	2	09 Oct.	23 Oct.	8.67	12.63	
	03 Nov.	4	23 Oct.	13 Nov.	-23.85	22.95	
	12 Nov.	1	23 Oct.	13 Nov.	-23.85	22.95	
	29 Dec.	4	18 Dec.	15 Jan.	2.48	7.77	
1969	24 Mar.	1,3	04 Mar.	28 May	17.93	31.15	Rain, coastal storm Tropical storm ANNA Hurricane BLANCHE Hurricane CAMILLE Tropical storm JENNY 2.04-m maximum, Sandy Hook 1.62-m maximum, Atlantic City Minor storm Coastal storm Coastal storm
	25 July-						
	05 Aug.	2	28 May	24 Sept.	- 7.65	19.86	
	10-13 Aug.	2	28 May	24 Sept.	- 7.65	19.86	
	14-22 Aug.	2	28 May	24 Sept.	- 7.65	19.86	
	01-10 Oct.	2	24 Sept.	20 Oct.	7.81	13.61	
	02 Nov.	4,5	20 Oct	18 Nov.	- 3.12	15.79	
	11 Dec.	5	18 Nov.	18 Dec.	8.04	13.65	
	15 Dec.	1,3	18 Dec.	20 Jan.	5.45	18.28	

Table 2. Documented coastal storms occurring during period of BEP surveys, September 1962 - June 1973.--Continued

Year	Storm date	Source ¹	Survey Dates		Volume Change (m ³ /m)		Remarks
			Before	After	Mean	Variance	
1970	07 Jan.	5	18 Dec.	20 Jan.	5.45	18.28	Storm moved rapidly
	23 Mar.	5	18 Mar.	21 May	8.79	19.51	
	02 Apr.	1	19 Mar.	21 May	8.79	19.51	Hurricane ALMA
	17-27 May	2	21 May	28 Aug.	1.34	40.05	
	15-18 Aug.	2	21 May	28 Aug.	1.34	40.06	
	27 Sept.	1	28 Aug.	12 Oct.	7.54	11.74	
	22 Oct.	5	12 Oct.	07 Dec.	- 4.28	43.86	
	26 Oct.	5	12 Oct.	07 Dec.	- 4.28	43.86	Coastal storm
	04 Nov.	1	12 Oct.	07 Dec.	- 4.28	43.86	
	17 Dec.	1,3,5	07 Dec.	18 Dec.	-14.71	32.03	
	26 Dec.	4	18 Dec.	12 Jan.	0.16	10.46	
1971	23 Mar.	5	08 Mar.	08 Apr.			Lesser storm than 27 March
	27 Mar.	4,5	08 Mar.	08 Apr.	- 2.81	14.95	1.58-m maximum, Sandy Hook
	06-07 Apr.	5	08 Mar.	08 Apr.	- 2.81	14.95	Typical northeaster
	04-07 July	2	24 June	17 Aug.			Tropical storm ARLENE
	10-17 Aug.	2	24 June	17 Aug.			Volume data not available
	20-29 Aug.	2,3	17 Aug.	07 Oct.	- 2.92	11.08	Hurricane BETH, volume data not available
	10-14 Sept.	2	17 Aug.	07 Oct.	- 2.92	11.08	Tropical storm DORIA Tropical storm HEIDI
1972	25 Jan.	1	12 Jan.	15 Feb.	- 6.27	9.07	Typical northeaster, no serious damage
	04 Feb.	5	12 Jan.	15 Feb.	- 6.27	9.07	
	13 Feb.	5	12 Jan.	15 Feb.	- 6.27	9.07	1.65-m maximum, Atlantic City 1.89-m maximum, Sandy Hook
	19 Feb.	4,5	15 Feb.	23 Feb.	- 0.69	12.99	
1972	14-22 June	1,2	11 Apr.	23 Aug.	25.17	27.97	Hurricane AGNES
	29 Aug. -						Tropical storm CARRIE
	05 Sept. 21 Dec.	2	23 Aug.	17 Oct.	0.01	23.35	
1973	28-29 Jan.	5	03 Jan.	13 Feb.			Coastal storm, erosion, flooding
	09-12 Feb.	5	03 Jan.	13 Feb.			
	21 Mar.	1,3,5	13 Mar.	24 Mar.	- 5.36	14.24	

¹Information sources are:

- 1 Storm Data and Unusual Weather Phenomena, U.S. Department of Commerce, NOAA, National Climatic Service, Series.
- 2 Newmann, et al. (1978).
- 3 DeWall (1979).
- 4 Ho, et al. (1976).
- 5 Birkemeier (1980).

coordinates of the MSL contour intercept with the initial survey on each profile line are defined as the origin of a coordinate system to which all subsequent surveys are referred (Fig. 7). Negative distances indicate stations landward of the MSL intercept with the initial profile; positive distances indicate seaward stations.

For a profile crossing the MSL elevation, the MSL intercept was linearly interpolated. When a profile did not cross the MSL elevation, but reached the 0.61-meter MSL elevation, the MSL intercept was determined by extrapolating the profile along the slope defined by the two seawardmost surveyed points on the profile (DeWall, 1979). Extrapolated shoreline points are indicated by the "x" symbol in the plots of Appendix B. Profile lines which could not be surveyed to the 0.61-meter MSL elevation were not used for shoreline or volume computations.

The cross-sectional area under each profile was computed. This area is bounded by three lines: (a) a vertical line projected from the landwardmost distance common to all surveys on a given profile line, (b) a horizontal line at the MSL elevation, and (c) the surveyed profile. The calculation was accomplished by summing 30.5-centimeter horizontal slices through the area under the profile from the highest elevation to MSL. The area change was then computed by subtracting the measured profile area from the previous profile area (Fig. 8). Note that the change in area (and volume) is referred to the previous profile and not the original profile. Cross-sectional areas were computed in square feet and then converted to unit volume in cubic meters per meter of shoreline.

The plots in Appendix E are profile envelopes; i.e., the plots show two lines drawn through the upper and lower extremes of the surveyed sand elevations on each of the profile lines. The envelope of extremes contains points from many different surveys, rather than trace a particular eroded or accreted profile found during one survey. This profile "sweep zone" is useful for designing the required depth of footings for coastal structures, burial depth for pipelines, and for other beach protection or improvement considerations.

The temporal and spatial variability of each of the beach profiles was also evaluated using empirical eigenfunction analysis. This technique has been used in a variety of scientific disciplines for many years (Lorenz, 1959), but it is only recently that the technique has been applied to examination of variability within the coastal zone.

When applied to analysis of a profile line resurveyed over a period of time, the method is useful in determining the topographic variability in the onshore-offshore direction and in time. Comparison of the eigenfunctions of a series of profiles taken along a coastline is useful for determining the long-shore variability. The technique has been applied to studies on beaches, islands, and other coastal and bathymetric features on both coasts (Winant, Inman, and Nordstrom, 1975; Vincent, et al., 1976; Resio, et al., 1977; Aubrey, 1978).

The objective of eigenfunction analysis is to separate the temporal and spatial dependence of the data set so that it can be represented as a linear combination of corresponding functions of time and space (Winant, Inman, and Nordstrom, 1975). This helps identify processes responsible for profile

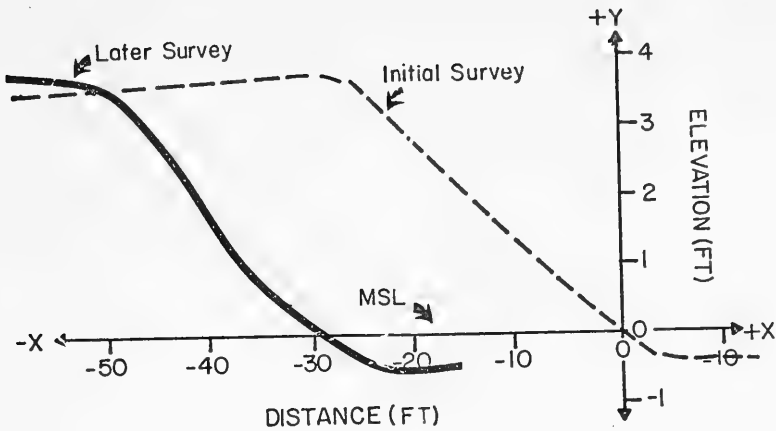


Figure 7. Profile line coordinate system (from DeWall, 1979).

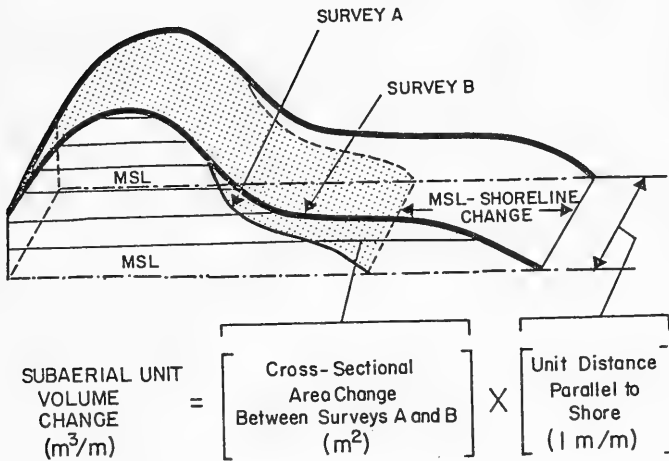


Figure 8. Definition of MSL shoreline change and above MSL unit volume change (from DeWall, 1979).

changes, assists in evaluation of their relative importance, and aids the identification of specific events.

The shape of a single profile changes between measurements in response to the many process variables (e.g., waves, wind, water level, etc) active on the beach. A careful evaluation of a profile line measured frequently over time may reveal systematic changes in its shape. Regular seasonal changes in profile area, for instance, were obvious on west coast beaches before being quantitatively confirmed by empirical eigenfunction analysis (Shepard, 1973; Aubrey, 1978). Along a single profile, zones of maximum variation are to be expected in the region of maximum wave energy dissipation. This, again, has been confirmed by empirical eigenfunctions on west coast beaches (Aubrey, 1978). The technique does not explain the physical reason for the variability. In the case of beach profiles, the sand is moved in response to wave forcing in a manner which is assumed to be deterministic, or at least statistically predictable. In this case, it is hoped that since the wave forcing provides most of the variability, the eigenfunctions will reflect this mechanism. By examining the temporal structure of the beach eigenfunctions along with spatial structure, the decision can be made as to whether, in fact, the eigenfunctions represent some physically meaningful process. This has been shown to be the case in nearshore profile studies.

Profiles obtained during the BEP do not extend beyond about the -0.61 meter MSL shoreline. For that reason, beach variability associated with transport in the nearshore zone seaward of this limit cannot be determined. This is a serious limitation of the data set and is not associated with a limitation in the method of analysis. It is known that the breaker zone and nearshore are regions of active transport both onshore-offshore and alongshore. Offshore bars act as periodic storage areas for sand that is later supplied to the beach under favorable wave conditions. The time periods and detailed response of this region cannot be determined from the available data.

IV. RESULTS

1. Temporal Variability.

a. Short-Term Changes (Storms). Coastal storms, such as the March 1962 storm, are particularly important agents for causing massive changes to the beaches. This storm, which never reached hurricane strength, resulted from two low-pressure cells which combined several hundred miles off the coast of New Jersey, Delaware, Maryland, and Virginia. It then remained stationary from 6 to 8 March generating high tides (2.2 meters above MSL) and extreme waves (6.1 to 9.1 meters high) which battered the coastline through five tidal cycles. The damage to Long Beach Island was particularly severe (Fig. 9). The northern end of the island was breached in four locations with waves destroying or damaging nearly every structure. In the vicinity of Harvey Cedars, the dune was breached, the area flooded, and most houses washed into Barnegat Bay. Dollar value of the damage at Long Beach Island was estimated at \$19,754,000, of which nearly half was attributed to storm waves. Other effects of the storm have been documented (Cooperman and Rosendal, 1962; U.S. Army Engineer Division, North Atlantic, 1963).



Figure 9. Damage caused by March 1962 coastal storm. Loveladies, Long Beach Township, Long Beach Island looking north, 9 March 1962 (from U.S. Army Engineer Division, North Atlantic, 1963).

After the March 1962 storm, emergency measures were necessary to rebuild the dune along 5,790 meters of shoreline. Approximately 182,220 cubic meters of sand was used to reconstruct a dune 3.0 to 3.7 meters above MSL. This restoration program was completed by late April 1962, 5 months before the first BEP survey. Sidecast dredging of Barnegat Inlet has continued on an annual or semiannual basis since 1972. Some of the dredged material was placed directly on the beach in the vicinity of profile lines 1 and 2. No other documented beach nourishment projects were carried out on Long Beach Island until the summer of 1979 when dredged material from the Barnegat channel was discharged along the shore to form a feeder beach at the north end of the island. Nourishment, then, has not been a factor in the evaluation of beach changes.

Table 2 provides a comprehensive list of storm events, compiled from various sources, for the study period. The record of storm data collected by the National Climatic Center (NCC) was reviewed for the period 1962 to 1973 for events that indicated a coastal impact such as high tides, coastal flooding and coastal erosion. Locations were not specifically indicated in this source. Tropical storms and hurricanes were obtained from Newmann, et al. (1978). Those events were selected which passed close enough to Long Beach Island to have an expected effect. Other historical documents indicating storms or occurrences of significant coastal impact were U.S. Army Engineer District, Philadelphia (1974), Ho, et al. (1976), DeWall (1979), and Birkemeier (1980).

Wind records from the NCC recording station at Atlantic City for the study period were sorted to determine the occurrences of winds greater than 54 kilometers per hour. The average monthly distribution of these severe winds is shown in Figure 10. This tabulation covers the period from 1965 to 1973, during which winds were recorded at 3-hour intervals. The distribution is decidedly seasonal but probably underestimates the actual time of severe winds along the beach since the recording station is located several miles inland. A 22-year record of winds at the Atlantic City station shows that most of the stormwinds are from the northeast, followed in frequency of occurrence by winds from the east (U.S. Army Engineer District, Philadelphia, 1974).

The Atlantic City NCC recording station is located at the Aviation Facilities Experiment Station, 16 kilometers inland from Atlantic City (Fig. 1). An analysis performed by the U.S. Army Engineer District, Philadelphia (1974) shows that the number of annual storm hours (e.g., the number of hours the recorded wind velocity was 51 kph or greater during a 24-hour period when the average velocity was 40 kph or greater) significantly decreased when the wind recording station was moved inland. Wind data are also recorded by the Coast Guard observers at Barnegat Light. These data are available in raw form from NCC but were not used in this study since analysis of the storm response required only that the event be identified and the Atlantic City data were sufficient for that purpose.

A total of 77 identified storm events occurred during the study period (Table 2). Column five in Table 2 indicates that the response of the beach during these storms was, in most cases, highly variable. This column is the volume change between survey periods averaged along the entire beach; the second number is the variance. The average change cannot be taken as a quantitative measure of sand movement since the profile lines were not evenly distributed along the beach. The sign of the number and its relative magnitude does,

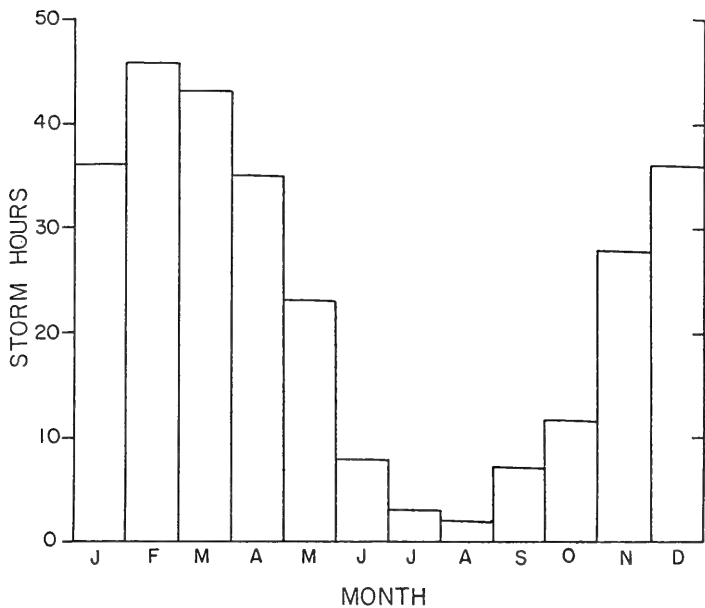


Figure 10. Average number of storm hours recorded at Atlantic City, New Jersey, 1965-73. A storm hour is defined as an hour when the wind is 51 kilometers per hour or greater during a 24-hour period when the average velocity was 40 kilometers per hour or greater (U.S. Army Engineer District, Philadelphia, 1974).

however, indicate qualitatively the trend over the period. Variance larger than the mean shows that some of the profiles prograded while others were eroded over the time interval between profiles.

The criteria for selecting the storms in Table 2 were based on those events that showed a significant change in the average beach volume, which could be attributed to a single event. This required that the storm be closely bracketed by surveys. An attempt was made to select storms distributed by season and over the entire period of the survey record. Of the 15 events that met these criteria, four which caused extensive erosion are discussed below. The results of an additional severe winter storm were previously reported by DeWall, Pritchett, and Galvin (1977). Each of the selected storms occurred during seasons other than summer. This is because widely spaced summer surveys did not meet the selection criteria and, as shown in Figure 5, few storms occur during the summer months.

(1) Refraction of Storm Waves. Strong onshore winds and low pressure enhance normal water levels and combine with storm-generated waves to cause coastal flooding and erosion. The direction and rate of net littoral transport cannot be determined from the beach profile data alone. Previous studies of the motion of the Long Beach Island inlets have concluded that a nodal zone exists in the vicinity of Barnegat Inlet with transport north of the zone toward the north and south of the zone toward the south (U.S. Army Engineer District, Philadelphia, 1974). However, no detailed studies are available which show the location of the node, its migration pattern, or the rate and direction of littoral drift along the length of the island. Studies which hope to answer these and other questions are being conducted (Dr. G. Ashley, Rutgers University, New Brunswick, New Jersey, personal communication, 1979).

Summary wave information was available from the wave gage at Steel Pier, Atlantic City, New Jersey, for most of the study period (Thompson, 1977). This provided height and period statistics, but did not provide directional information necessary for computation of sand transport. Wave data were also available from the Summary of Synoptic Meteorological Observations (SSMO), Volume 3 (U.S. Naval Weather Service Command, 1975). These are not appropriate for calculations of sand transport because they are at-sea observations and do not give precise directional information. They are also biased toward low wave conditions since reporting ships attempt to avoid severe weather by rescheduling or rerouting. Local visual observations were collected as part of the BEP at selected profile line locations from 1968 to 1974. These provide estimates of wave height, period, and direction. According to these sources, storm waves generated by northeasters may develop periods of 8 to 12 seconds.

Storm winds approach Long Beach Island from the northeast, east, and southeast in that order of frequency of occurrence (U.S. Army Engineer District, Philadelphia, 1974). Wave refraction diagrams were developed for waves approaching from these directions in order to determine if local topographic features caused wave focusing or other effects along the island and to obtain qualitative estimates of the locations of energy concentration under various conditions of offshore wave approach. Interpretation of these results should not be heavily relied upon since many assumptions are made about the waves and their behavior that do not apply to the prototype situation. Monochromatic, linear waves are

assumed and bottom frictional effects are ignored. These assumptions may lead to serious consequences since wave energy is not at a single mode but in a spectrum (unknown in this case) which may be altered as it proceeds across the shelf and nearshore zone. Crossing wave rays imply infinite wave heights which obviously do not exist. The refraction depends upon accurate knowledge of bathymetry on the scale of the wavelength of the surface wave. Bathymetric data were obtained from the National Geophysical and Solar-Terrestrial Data Center, Boulder, Colorado, and averaged in an offshore grid size of approximately 200 meters. The wave refraction program of Dobson (1967) was adapted for this study.

Waves of 2-meter heights and 10-second periods were assumed to approach the island from the three indicated directions, and resulting refraction diagrams are shown in Figures 11 to 16 for the north and south halves of the island. Bathymetry is shown with a 5-meter contour interval. Several parallel, northeast-trending swales lie submerged off the island and are subparallel to the shoreline. Waves from the northeast approach with crests perpendicular to these features and are refracted in an extremely complicated way. Figures 11 to 16 should not be taken as indicative of actual ray paths, but they do show that waves approaching from the direction of the predominant storm interact with the bottom in ways that may induce transport patterns that are not generalized along the entire beach. Wave rays approaching from the east (Figs. 13 and 14) are somewhat less complicated because of their greater angle of attack to the offshore bathymetric features. Points of local energy concentration suggested by the convergence of wave rays indicate that longshore gradients in wave run-up are developed which transport material along the island in both directions. Similar suggestions of focusing are seen in the wave rays approaching from the southeast (Figs. 15 and 16), nearly perpendicular to the shoreline. Additional studies of nearshore currents and angles of wave approach along the beach are required to substantiate these indications.

(2) Northeaster, 3 November 1962. Most serious storms along the New Jersey coast are caused by low-pressure systems generating strong winds and steep waves from the north to east quadrant. Birkemeier (1980) has identified the 3 November storm as a "classic northeaster" which caused considerable erosion during the same year of the most devastating Great East Coast Storm. The record of 3 hourly wind readings made at Atlantic City showed that, since a previous northeast storm in late September, winds had remained mainly from the west with periods of northwest and southwest flow (Fig. 17). The September storm caused widespread erosion, but was not selected for analysis because the survey was apparently made before the storm was over, and the entire beach was not included in the survey. An early November storm occurred between 2 and 4 November after a 2-week period of offshore (seaward) winds. Maximum recorded winds of 50.4 kilometers per hour occurred on 3 November from the northeast. Since these were recorded at the inland site, wind velocity along the beach could be expected to be somewhat greater. Location of the profile lines relative to the beach structures known to exist at the time of the surveys is shown in Figure 4. The changes

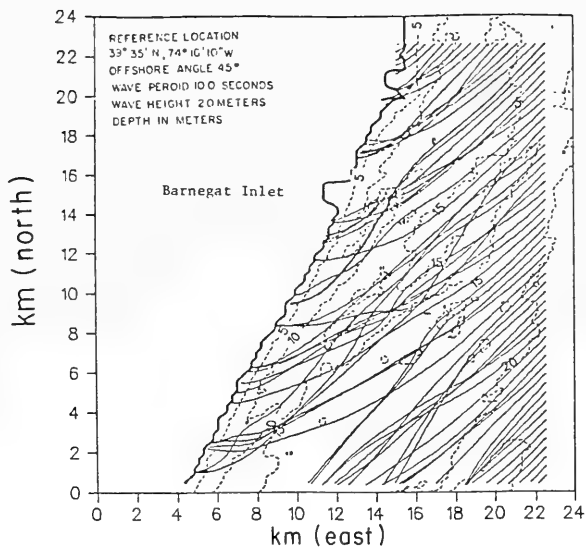


Figure 11. Wave refraction pattern for wave approaching the north half of Long Beach Island from the northeast.

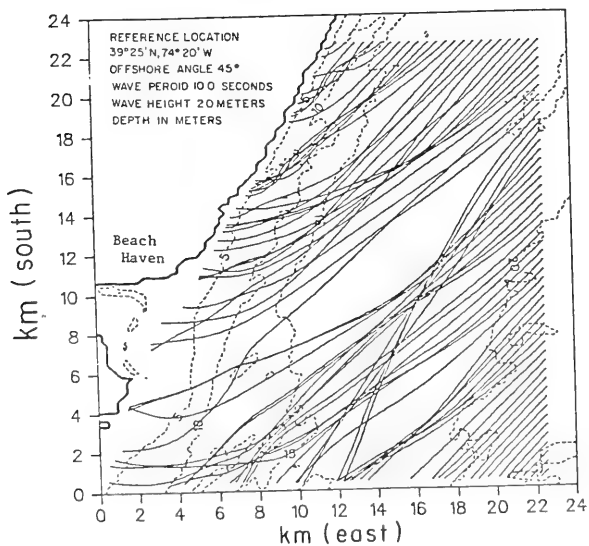


Figure 12. Wave refraction pattern for wave approaching the south half of Long Beach Island from the northeast.

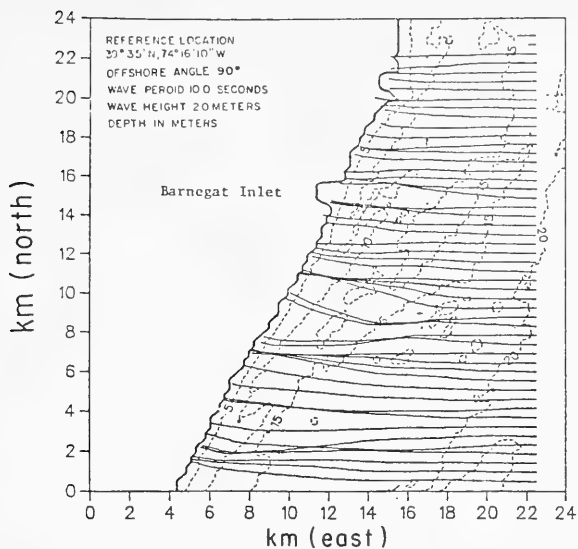


Figure 13. Wave refraction pattern for wave approaching the north half of Long Beach Island from the east.

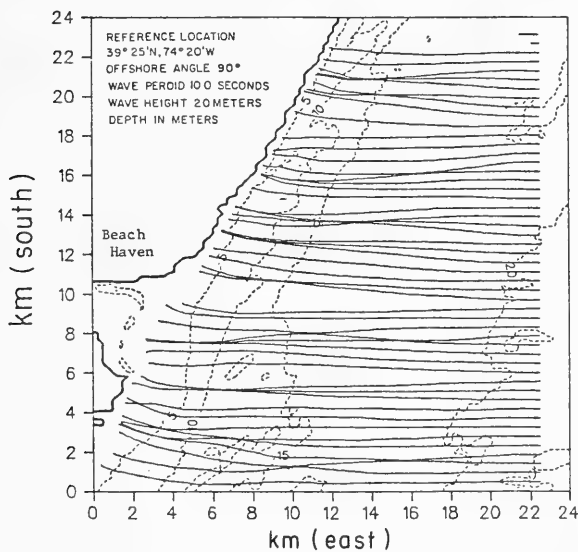


Figure 14. Wave refraction pattern for wave approaching the south half of Long Beach Island from the east.

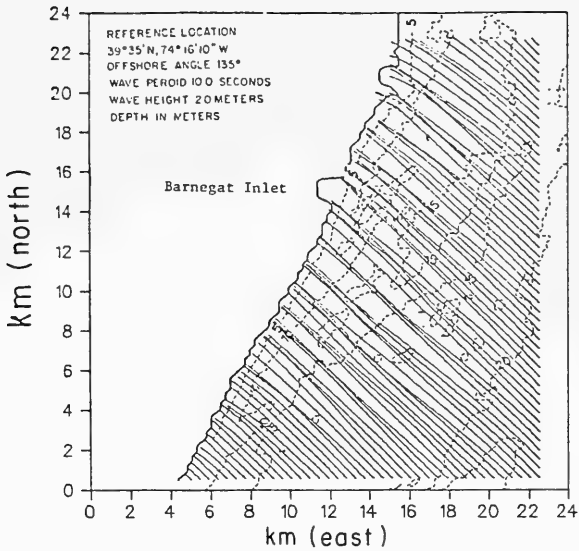


Figure 15. Wave refraction pattern for wave approaching the north half of Long Beach Island from the southeast.

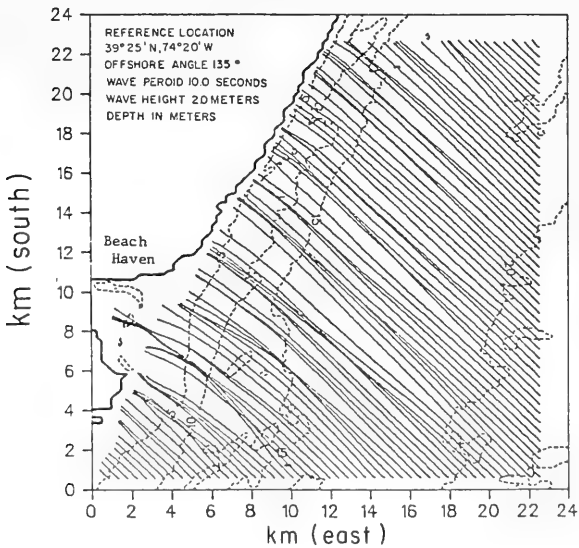


Figure 16. Wave refraction pattern for wave approaching the south half of Long Beach Island from the southeast.

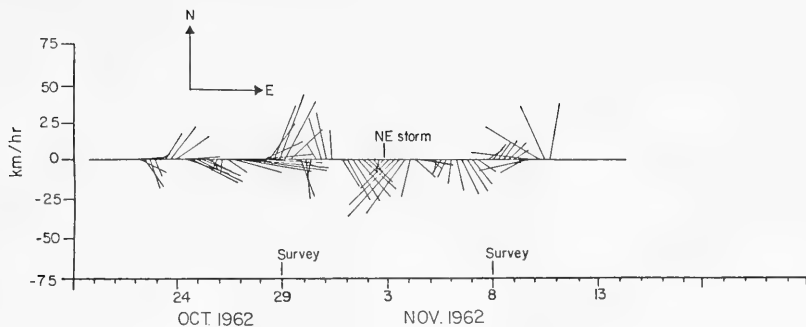


Figure 17. Wind diagram from data recorded at Atlantic City for parts of October and November 1962. Storm occurring 3 November was a "classic northeaster."

in above MSL sand volume which occurred during the interval are given in Table 3. Profile lines 3 to 14, 16, 17, and 20 were not protected by structures and experienced general erosion except at profile lines 5, 6, and 13. The latter three showed accretion with profile line 13 gaining 21.83 cubic meters per meter in sand volume while adjacent profile lines 12 and 14 suffered erosion. This was the greatest gain of any profile measured. Greatest losses occurred at profile lines 4, 10, and 16. The reasons for the extreme variability in volume change are not clear, but may be related to differential wave refraction and wave focusing.

(3) Winter Storm, 13 January 1964. A severe winter storm which developed strong winds from the northeast and north hit the New Jersey coast in January 1964 causing blizzard conditions, coastal erosion, and maximum high tide levels (Table 2). Winds recorded at Atlantic City during this period exceeded 72 kilometers per hour and were above 54 kilometers per hour for a 3-day period surrounding 12, 13, and 14 January (Fig. 18). Surveys of the beach were taken on 27 December 1963 and again on 15 January 1964 as the storm was abating. Erosion along the island was general except at profile line 21. Losses from profile lines 13, 18, and 19 were also anomalously small compared to the other profiles. Profile lines 18 and 19 are surrounded by older groins, but, since the groins recorded as built in 1964 were probably not yet in place, the reason for only a moderate loss at profile line 13 is not clear. Profile lines 1 to 4 at the north end of the island were apparently protected from the north-east waves by the Barnegat Inlet jetties (Fig. 2).

Table 3. Change in profile above MSL sand volume due to selected storms.

Line	Storm dates			
	29 Oct.-8 Nov. 1962 (m ³ /m)	27 Dec. 1962- 15 Jan. 1963 (m ³ /m)	23 Oct.-13 Nov. 1968 (m ³ /m)	13-24 Mar. 1973 (m ³ /m)
1	- 6.32	- 6.90	- 8.49	- 8.79
2	- 9.74	- 1.31	10.45	- 5.31
3	- 4.27	- 0.49	- 57.05	- 15.58
4	- 28.26	- 4.90	- 69.68	- 10.14
5	7.87	- 33.13	- 11.10	- 6.04
6	7.30	- 26.99	- 24.04	- 13.21
7	- 17.61	- 33.14	- 32.84	- 7.82
8	- 16.92	- 69.15	- 40.23	- 11.13
9	- 13.00	- 39.12	- 44.48	- 10.25
10	- 28.32	- 35.72	- 52.96	- 30.02
11	- 24.13	- 25.31	- 44.10	- 19.89
12	- 14.44	- 45.68	- 28.27	19.71
13	21.83	- 14.20	- 15.27	
14	- 1.21	- 29.40	- 26.15	- 3.71
15	2.96	- 44.45	- 34.29	- 12.15
16	- 27.15	- 26.44	1.34	- 3.40
17	- 21.79	- 19.03	- 26.55	- 4.12
18	- 17.37	- 12.58	- 14.18	19.97
19	- 0.02	- 14.77	- 15.97	- 11.92
20	- 21.26	- 41.08	2.36	- 11.84
21	10.86	9.71	2.18	43.55
22				- 19.44
23				- 1.23
24				- 17.02
25				- 14.78
26				- 3.18
27				9.70
28				- 6.26
29				8.39
30				0.50
31	No record			
32	- 20.52	- 15.35		
33				- 15.27

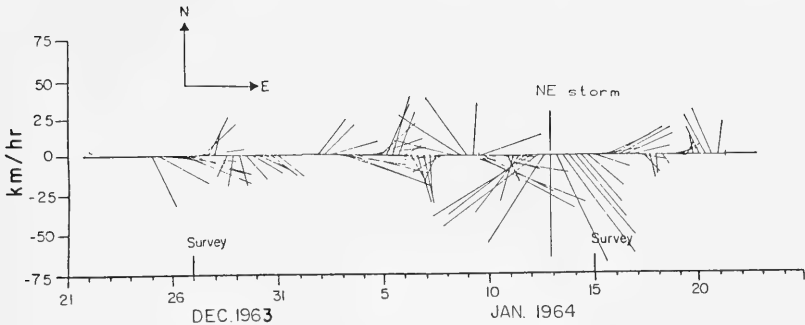


Figure 18. Wind diagram from data recorded at Atlantic City for December 1963 to January 1964, showing a northeast storm of 12 January and beach surveys. The gap from 30 December through 2 January is from a change in data format between 1963 and 1964.

(4) Northeast Storm, 12 November 1968. A short-lived, intense north-east storm with rain, snow, and wind caused erosion along the island during the survey interval from 23 October to 13 November 1968 (Fig. 19, Table 2). Erosion was widespread and severe, particularly north of the causeway and in segments to the south. Profile lines 1 and 2, enclosed by the jetties, showed erosion and accretion, respectively. Profile lines 3 and 4 suffered a severe loss of sand volume. This is in contrast to the response shown for the 13 January 1964 storm during which the profile lines were protected by the jetty. Since both generated high storm tides, differences in the wind patterns may account for the response. Winds during the January storm were from the west northwest, with the Atlantic beach face protected, on the 11th and began to develop strongly from the north-northeast, essentially parallel to shore, on the 12th. The winds remained strong but rotated counterclockwise blowing from the west on the 16th. This is the classic pattern of winds generated by a low-pressure system seaward of the island moving up the coast. A similar, though much less intense low on 10 November 1968 followed the same pattern as the 13 January 1964 storm. This storm, however, was followed by intense winds from the east-northeast in a direction nearly parallel to the south Barnegat Inlet jetty. This direction of wave approach combined with local refraction which may have focused the wave energy was apparently sufficient to cause a large amount of erosion to profile lines 3 and 4 as well as others. Profile lines 6 to 12 were also severely cut back during this event, as were profile lines 14 and 15. The south end of the island from profile line 15 showed great variability with profiles alternately eroding and accreting (Table 3). Most of the groins were in place during this period with the exception of the

structures built in 1969 around profile line 13. This profile again was not as severely affected as many others.

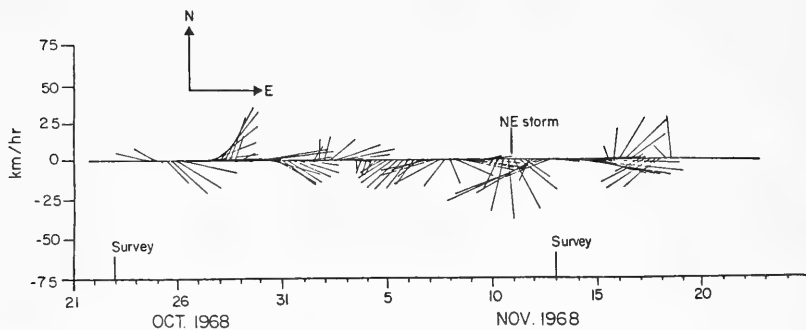


Figure 19. Diagram of winds recorded at Atlantic City, October–November 1968, showing northeast storm of 12 November and beach surveys.

(5) Spring Storm, 21 March 1973. This coastal storm differs from the previous three since the strongest winds from the south and southwest were caused by a low-pressure system centered west of the island that moved northward. These winds (Fig. 20), which reached intensities of 90 kilometers per hour, swung clockwise from south to northwest before abating. Winds from the north and northeast were then built up to intensities of 54 kilometers per hour during the 24 March survey. Though this is the only local storm during the survey interval, the high-velocity shifting winds made interpretations difficult. Erosion was widespread over the profiles though not as severe as during the winter northeast storms in spite of the high winds (Table 2). All profiles from profile line 11 north showed a loss in volume over this interval except the closely spaced profile lines 22 to 30 used for the groin field studies. South of profile line 11, the changes were extremely variable, ranging from a loss of 12.15 cubic meters per meter at profile line 15 to a marked gain of 43.55 cubic meters per meter at profile 21. Closely spaced profiles were being surveyed during this period. This data set is examined in Section IV-3.

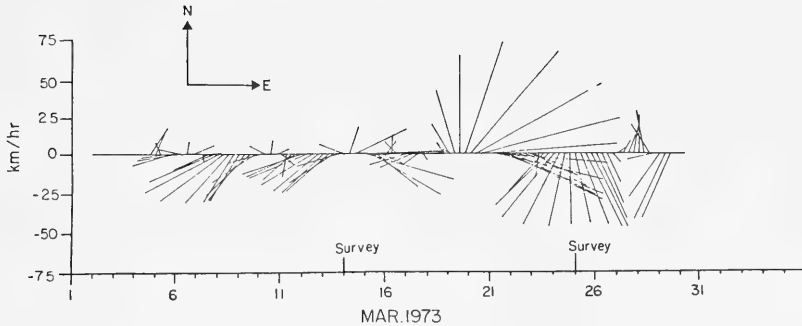


Figure 20. Diagram of winds recorded at Atlantic City, March 1973, showing strong southwest winds followed by a northeast storm. Erosion was not particularly severe on Long Beach Island.

b. Seasonal Changes. There is a definite seasonal cycle associated with the frequency and intensity of storms recorded at the Atlantic City reporting station (Fig. 10). West coast beaches respond to seasonal differences in wave climate caused by winter storms and exhibit a distinct bimodal character, being eroded with concave-upward profiles during winter and convex-upward profiles in summer (Shepard, 1950; Komar, 1976; Fox and Davis, 1978). The seasonal signal, if it exists, may also be detected in the empirical eigenfunction analysis. The seasonal cycles are clearly discernible in the second temporal eigenfunction of Aubrey (1978) from studies conducted on Torrey Pines Beach. If the record is demeaned, a strong seasonal signal should show in the first beach eigenfunction. The ideal record from which to extract the seasonal signal is one that is evenly and often sampled during all seasons. This requires at least monthly surveys of the profile sites. The sampling distribution for Long Beach Island was not evenly distributed as shown in Figure 4. Summer seasons, particularly during 1964-69, were infrequently sampled with some seasons missed completely. The other seasons were more frequently sampled since more beach changes were expected.

Several periods of frequent sampling were selected during 1963 and again in 1969-71. Eigenfunction analysis was performed on selected profiles not directly adjacent to groins to determine a seasonal variation. A definite seasonal variability is seen in the first temporal eigenfunction (Fig. 21) with mean removed. The trend is not as marked as on west coast beaches. Profile lines 5 and 11 show a low at the beginning of 1970 and a rise in the midyear. A similar pattern is seen in 1971. Profiles 14 and 16 do not show as marked a trend and appear to be out of phase with the other profile lines. Whether this is an opposite seasonal trend or the result of a sign ambiguity in the eigenfunction analysis is under study. However, the seasonal cycle can be seen in

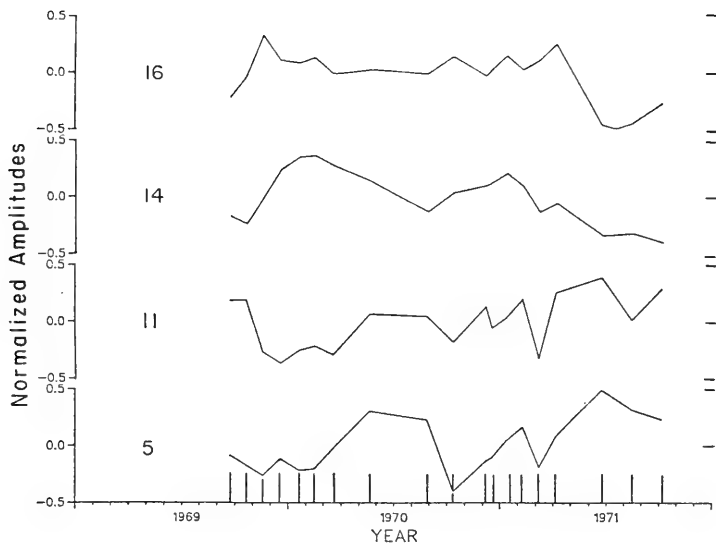


Figure 21. First temporal eigenfunction, mean removed, for profile lines 5, 11, 14, and 16. Profile lines were selected to be as evenly spaced as possible by season and to minimize groin effects.

each of the selected profile lines. Previous studies of MSL shoreline and beach volume changes had concluded that a well-defined seasonal response was not found on Long Beach Island (Everts and Czerniak, 1977). Goldsmith, Farrell, and Goldsmith (1974) also concluded that during a 1-year study (1973-74) of biweekly profile measurements at the southern end of Long Beach Island there was no overall seasonal trend. These data were not analyzed using empirical eigenfunctions. The fact that the seasonal signal can be shown here by a quantitative, objective method emphasizes the value of the technique applied to well-planned data sets.

c. Long-Term Changes. One of the goals of the BEP was to determine the long-term trend of beach development at the various evaluation sites. This is important from the standpoint of planning the beach preservation strategy as well as assessing the effectiveness of existing beach protection measures. A study of long-term shoreline changes along the mid-Atlantic coast, from Beach Haven Inlet to Shackleford Bank, North Carolina, was recently completed by Dolan, et al. (1979). Air photos, some dating back to 1930, were used to determine the rate of shoreline change of the barrier islands and headlands along the 630-kilometer section of coastline. Erosion rates averaged 1.5 meters per year, but were extremely variable with the greatest erosion rates occurring on unstructured, small barrier islands. Accretion was observed in developed areas near the north end of the study area where beaches are maintained by groins, jetties, and beach nourishment. The results of Dolan, et al. (1979) should not be extrapolated to Long Beach Island, but they do indicate that long-term erosion is not a necessary and general condition in the adjacent area to the south.

Trends in the change of MSL shoreline position and volume over the period of the study are apparent from the figures in Appendixes B and E. A qualitative indication of the trend in the above parameters as well as that apparent from the first beach eigenfunction of the total and demeaned data set is shown in Table 4. Linear regression was not used because the resulting slope implies a degree of precision and predictability that is unwarranted by these data. The volume change shows that only one profile line (21) showed a decrease over the study period. All of the other profiles indicated a volume increasing with time or no change. The first eigenfunction of the demeaned data is particularly well correlated with the rate of volume change. Comparison of the trends shows a one to one correspondence in most cases. Profile lines 17 and 18 indicate a negative correlation between the first demeaned beach eigenfunction and rate of volume change. This is due to a sign ambiguity which exists in the numerical solution for the eigenfunctions and eigenvalues. It may be resolved by integrating the product of the first temporal eigenfunction and the first spatial eigenfunction over the length of the profile. No long-term trends were obtainable from the 1-year record of profiles within the groin field (profile lines 21 to 30). Profile line 7, in that region, showed no trend in the rate of volume change. This analysis indicates that, in spite of large variability in above MSL volume, most of the profiles along Long Beach Island are stable and many are accreting over the term of the study.

Profile measurements were extended offshore to a depth of approximately 10 meters in 1937, 1955, 1963, and 1965. Detailed soundings were made in Barnegat and Beach Haven Inlets and, during the latter 3 years, were relatively evenly spaced along the beaches as well (Fig. 4). Many of the offshore

Table 4. Long-term trend in beach profile as indicated by MSL sand volume change, MSL shoreline change, and first spatial eigenfunction.¹

Profile line	Volume change	MSL shoreline change	First eigenfunction mean included	First eigenfunction demeaned
1	0 (large variability)	+	0	+
2	0 (large variability)	+	0	+
3	0 (large variability)	0	+	5-year cycle
4	0	0	0	0
5	0	+	0	0
6	0	0	+	+
7	0	0	0	+
8	0	0	0	+
9	0	-	0	0
10	0	0	0	0
11	0	-	0	0
12	0	0	0	0
13	0	0	0	0
14	+	0	+	+
15	0	+	+	+
16	+	0	+	+
17	+	0	0	-
18		Great variability	+	-
19	+	+	+	+
20	+	0	+	+
21	-	Extreme variability	0	-

¹Change indicated by + increase, - decrease, and 0 no change.

profile locations corresponded to those used for the beach surveys. Profile measurements were made at different times of year (e.g., the 1955 measurements were "Feb.-Sept.," 1963 - "Oct.," and 1965 - "Sept."). It is not known what the normal variability of the profiles is, so comparisons must be interpreted with caution. The profile lines obtained from the Philadelphia District were integrated from the MSL position to about the -10-meter MLW contour in order to compare the change in offshore sand accumulation. The integration was carried out at 3-meter depth intervals in order to compare the variability at the shallow intermediate and deep region. The change in area under each profile line as well as the net area change over the interval were computed. During the interval 1955-63, half of the profiles gained sand while half showed no change (profile 69) or lost sand. Much of the gain over this interval took place in profiles 72 and 73. A detailed look at the profiles showed a series of offshore bars which were nearly in phase between 1963 and 1965 but which were displaced landward more than 120 meters in 1955. Since similar sand waves were in phase during all three profiles at other locations, it is probable that the displacement was caused by a systematic error in the measurement. Most of the variability in the other profile lines took place near the shore at depths of -2 meters MLW or less. It is possible that the large increase in offshore sand volume between 1955 and 1963 is the result of erosion from the beach during the March 1962 storm.

Many of the profiles showed bars nearshore before grading smoothly at a slope of about 1:20 seaward to the -6-meter depth. The slope then abruptly decreased to about 1:200 or less. Offshore features with relief less than the contour interval of the bathymetric chart (6 feet) do not appear on the charts. Profile 58, however, shows three sand waves with wavelengths of about 700 meters and amplitudes of about 1.5 meters present and in phase in the 1963-65 profiles. Much of the feature was also apparent in 1955.

Though a firm conclusion is not possible from these data, the offshore features, such as bars and shoals, at depths of 6 meters and beyond appear to be stable, suggesting that most of the variability in sand volume takes place in the shallow beach face at depths less than 3 meters.

2. Spatial Variability.

Longshore and onshore-offshore variations in beach morphology were examined to determine systematic spatial variability including effects due to the proximity of profile lines to shore protection structures. Total volume calculations are often used as an indicator of the direction and degree of beach erosion or accretion. Calculations based on these profiles are shown as volume changes above the MSL shoreline in Appendix D, and the method of calculation is explained in Section 3. The amount of beach (sand) volume depends upon the offshore distance to which the calculations extend. If the distance is short, the recorded changes may have occurred only in the berm while very long profiles may show no net change because onshore accretion is compensated by offshore erosion. The existence of nodal points in the profiles representing onshore-offshore sediment exchanges (e.g., Aubrey, 1979) emphasizes the importance of selecting the proper offshore distance for volume calculation, especially when comparing results between different profile lines. Since the eigenfunction analysis retains spatial covariance information, volume changes can be readily calculated to any offshore distance, with the nodal points well delineated.

Changes in the MSL shoreline have been calculated as discussed in Section 3, and are graphed for each profile line in Appendix B. This parameter is sometimes invoked as an indicator of seasonal beach changes and, indeed, may show persistent long-term trends. Short-term changes in MSL intercept may also be caused by migrating rhythmic topographic features, such as cusps or rip channels, and may be incorrectly interpreted unless closely spaced profile lines are obtained.

The major disadvantage of the eigenfunction technique is that the results may be more obscure than simple volume calculations or MSL intercept plots. Beach changes may be regular and predictable, but the eigenfunctions do not always have simple physical interpretations. In much work to date on west coast beaches, the eigenfunctions have had physical analogues (e.g., Winant, Inman, and Nordstrom, 1975; Winant and Aubrey, 1976; Aubrey, 1979). Eigenfunction analyses on other beaches have shown similar characteristic shapes.

The alongshore variability of the beach profile measurements has been investigated by plotting the mean square value (MSV) and variance (VAR) of each line 1 through 21. No consistent trends emerged from this analysis except for the plot of total VAR of the demeaned data (Fig. 22). Though the conclusion must remain tentative, since each profile line did not contain the same number of points nor extend the same distance offshore, there is a trend of increasing variability from north to south along the island. The reason for the greater variability (if it is real) may be associated with more active transport processes occurring along the unstructured Beach Haven Inlet.

The alongshore variation was also examined to see if differences existed between profiles relatively evenly spaced between groins (profile lines 5, 7, 9, 12, 13, 14, 16, 20) and those closely adjacent to groins (profile lines 4, 6, 8, 10, 11, 15, 17, 18). No marked difference was discernible from these data. The eigenfunction analysis did not differentiate between beach responses to structural control simply on the basis of gross characteristics such as MSV, VAR, and percentage of VAR accounted for by the first eigenfunction. Examination of the closely spaced profile lines within the groin field (profile lines 22 to 30) will be discussed later in this report.

The demeaned spatial profiles demonstrate two major relationships between the first and second eigenfunctions (Fig. 23,a). The first group of profile lines (1, 2, 4, 5, 6, 10, 11, 12, 14 to 17, 19, 20) is the dominant form and has the second eigenfunction in phase spatially with the first on the beach backshore, and out of phase in the foreshore. For a positive temporal second eigenfunction [$c_2(t)$], the second eigenfunction shows an enhanced buildup in the backshore and a reduced buildup in the foreshore. For a negative weighting for $c_2(t)$, the backshore erodes while the foreshore accretes. Since the second eigenfunction is always less dominant than the first, this effect is second order.

The second profile grouping (profile lines 7, 8, 9, 13, 18) is shown in Figure 23(b). The first eigenfunction has a spatial sign difference between the foreshore and backshore, while the second eigenfunction has no sign difference. This eigenfunction representation shows the same result as the previous grouping; a positive weighting on the second function, $c_2(t)$, indicates accretion on the backshore and erosion on the foreshore, while a negative $c_2(t)$

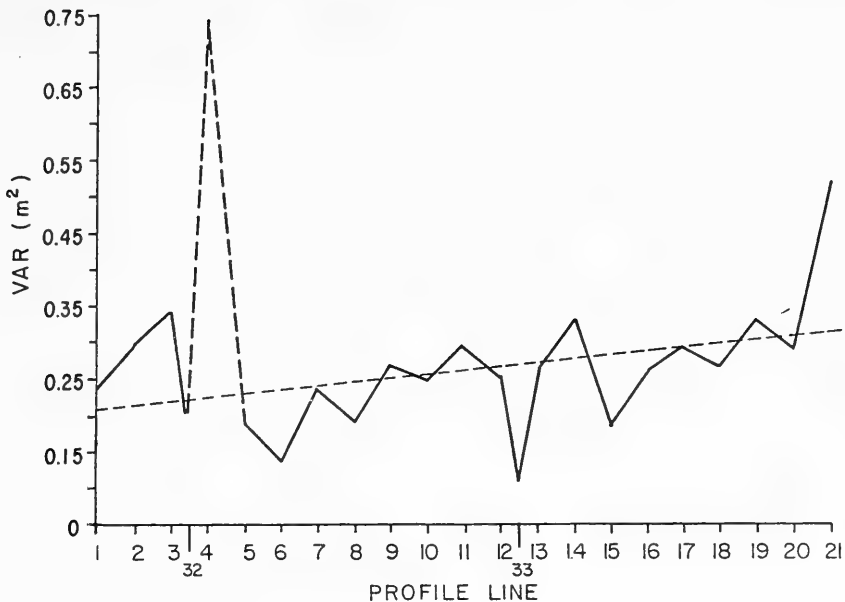
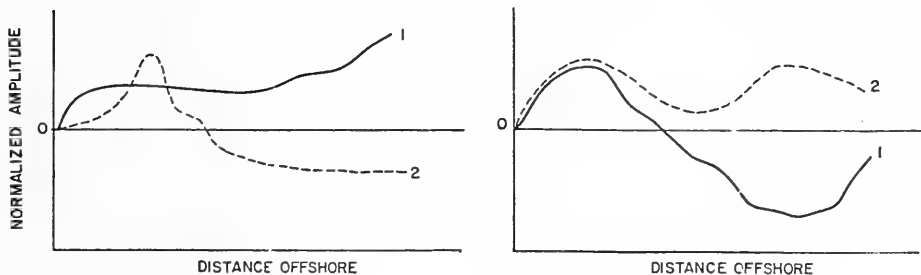


Figure 22. Total variance from empirical eigenfunction analysis at each profile line 1 to 21, 32 and 33.



(a) Characteristic of profile lines 1, 2, 4, 5, 6, 10, 11, 12, 14 to 17, 19, and 20. Spatial functions are in phase on backshore while second function is negative offshore.

(b) Characteristic of profile lines 7, 8, 9, 13, and 18. Spatial functions are in phase on backshore while first function is negative offshore.

Figure 23. Characteristic shapes of the demeaned beach eigenfunctions for Long Beach Island. The first two spatial eigenfunctions are shown.

indicates erosion on the backshore and accretion on the foreshore. The primary difference in the two eigenfunction representations is the negative covariance between the foreshore and backshore in the first eigenfunction for the second grouping and positive covariance for the first set of profiles. No physical explanation for the different beach response for these two groupings is apparent.

For the mean beach eigenfunction (those with the mean profile retained), the first eigenfunction is analogous to a mean beach profile. There is considerable variation in the beach slopes for the different profiles, but the eigenfunction analysis shows no systematic relationship between these profile slopes and proximity to beach structures.

3. Groin Field Studies.

Closely spaced profiles were taken along a section of beach protected by evenly spaced groins between the towns of Loveladies and Harvey Cedars (profile lines 22 to 30). Ten surveys of each profile line were made over a period of nearly 1 year (28 Aug. 1972 to 11 June 1973). Each set of parallel profile lines, three within each groin compartment, was arranged with the center profiles (23, 26, 29) spaced equally between the groins and the other lines two-thirds of the remaining distance to the groin on either side. Changes, between surveys, in MSL position and sand volume at each profile line have been prepared in Appendixes B and D, respectively. The changes within the groin field between survey dates are shown in Figure 24 for MSL position and Figure 25 for above MSL sand volume. Comparison of Figures 24 and 25 shows that the above MSL volume change is highly correlated with the MSL position change.

Visual wave observations were made once each day in the vicinity of Harvey Cedars during much of the period of these surveys. These data are not suitable for quantitative determinations of transport rate and direction because direction estimates are imprecise and data are not complete. The visual data were reviewed, however, for qualitative estimates of transport during each measurement interval.

a. 29 Aug. - 16 Oct. 1972. Few visual wave observations were taken during this interval and none are available after 21 September. It is obvious, however, that each groin cell responded similarly to processes occurring before the 16 October survey. The north side of each groin cell (A, B, C in Figs. 24 and 25) shows general erosion while the south side shows accretion, indicating longshore transport from north to south. The net gain in above MSL sand volume in each groin cell indicates that sand must have been contributed to the groin field from offshore or updrift. Tropical storm Carrie occurred shortly after 29 August, but its influence on the measured beach changes is unknown.

b. 16 Oct. - 4 Dec. 1972. The pattern of change in above MSL volume and MSL position reversed in all groin cells during this interval. Erosion occurred at the south end of each cell with accretion at the north end. No storms are recorded during the interval (Table 2) but visual wave observations are available for 30 of the 49 days. Most of these record waves approaching from directly offshore. Two days prior to the survey, however, waves were observed breaking at an angle from 5° to 30° to the shoreline, approaching from the south. These would have induced northward transport and may be responsible for the observed pattern of change.

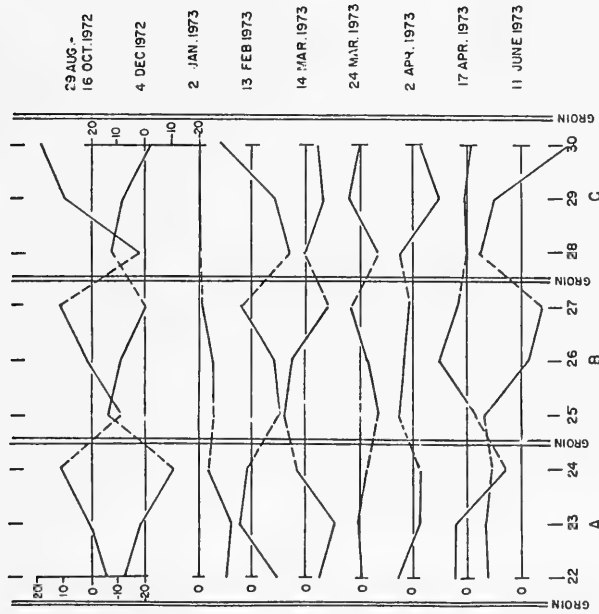


Figure 24. Change in distance to MSL intercept (m) between surveys along closely spaced profile lines 22 to 30.

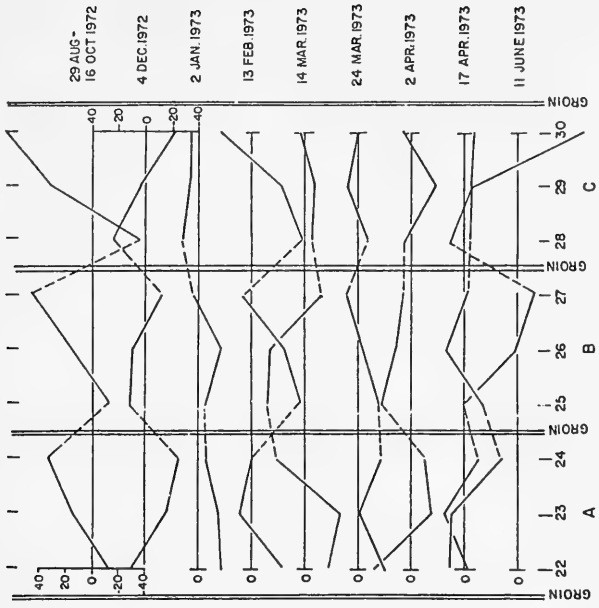


Figure 25. Change in above MSL sand volume (m^3/m) between surveys along closely spaced profile lines 22 to 30.

c. 4 Dec. 1972 - 2 Jan. 1973. Visual wave observations, available for 15 days of the 27-day interval, indicate that waves arrived oblique to the shoreline more than half of the time reported. Height and number of observations indicate transport from north to south was predominant. The MSL shoreline receded at all groin cells during the interval with slightly less erosion at the south end of two of the cells. The MSL shoreline position changed little in cell C while the above MSL sand volume increased in the same cell indicating berm building over the interval.

d. 2 Jan. - 13 Feb. 1973. A pattern of change was reestablished in the groin cells during this interval indicating transport from north to south at the time of measurement. Visual wave observations were made for 27 days of the 43-day period. Only 10 of these are indicated as providing an oblique approach (6 from north, 4 from south). Observations from the Atlantic City recording station show that winds were from the northwest during much of the interval with several periods of southerly winds (Fig. 26). The latter caused waves from the southwest. A northeast storm occurred about 9 February causing the largest waves of the interval (1.25 to 1.50 meters) from that direction and was probably the important influence on the observed changes. The measured beach topography for each of these dates is shown in Figure 27(a) and (b) with the regions of erosion and deposition shown in (c). The topography and change directly adjacent to the groins have been estimated. The map of the difference between the two topographies shows the pattern of erosion. Each cell eroded on the northern side and accreted on the southern side. There was a net loss in sand volume during the interval suggesting that sand was moved offshore or elsewhere out of the range of the survey measurements.

e. 13 Feb. - 17 Apr. 1973. Beach changes during these four intervals showed no particular pattern by groin cell attributable to available wave and wind data. Visual wave observations, recorded daily for more than 90 percent of the interval, suggest that the predominant transport is from north to south.

f. 17 Apr. - 11 June 1973. Almost half (25 of 54) of the visual wave observations during this interval indicate the predominant transport direction should be toward the north, and this is reflected in the pattern of change observed in the groin field. The north side of each cell accreted while the south side eroded. There was a net gain in sand volume throughout the groin field with cell A showing general accretion from side to side.

The pattern of change in each groin cell for the entire study interval (28 Aug. 1972 to 11 June 1973) is shown in Figure 28(a) and (b) for MSL shoreline and above MSL volume, respectively. They compare the mean change in each groin cell with the net change for each profile. The data are not sufficient for statistical tests of significant difference; however, the standard deviation (sd) about the mean is indicated on the southernmost profile line of each cell (i.e., profile lines 24, 27, 30). The fact that the same pattern of change is shown in each groin cell indicates that the measured response is real and that the groins have influenced the littoral transport process. The mean change in each cell was greater than zero indicating that, over the period of measurement, the beach experienced a net accretion. The mean increase in above MSL volume, for instance, was greatest in cell B (28 cubic meters per meter) and least in cell A (5 cubic meters per meter). The mean increase in cell C was 22 cubic

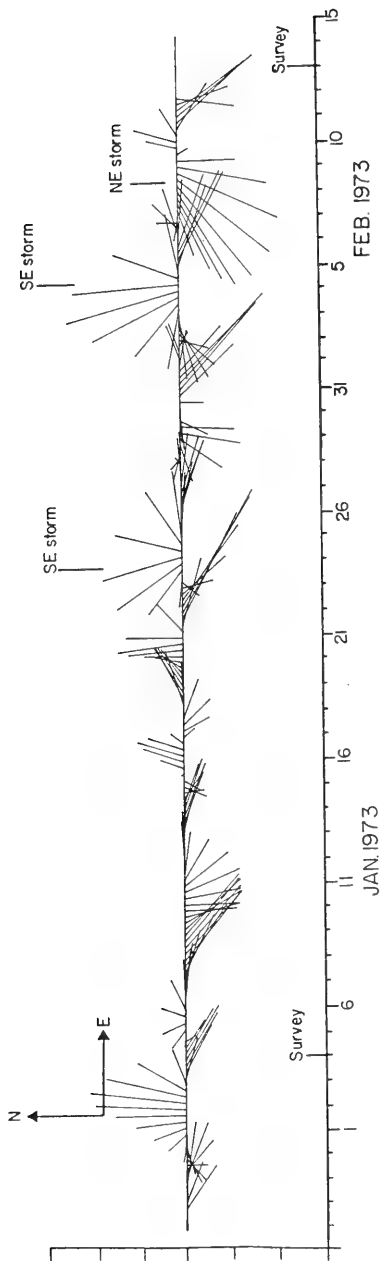


Figure 26. Atlantic City wind record for January-February 1973 showing periods of strong southeast and northeast winds. Resulting beach changes are shown in Figure 27.

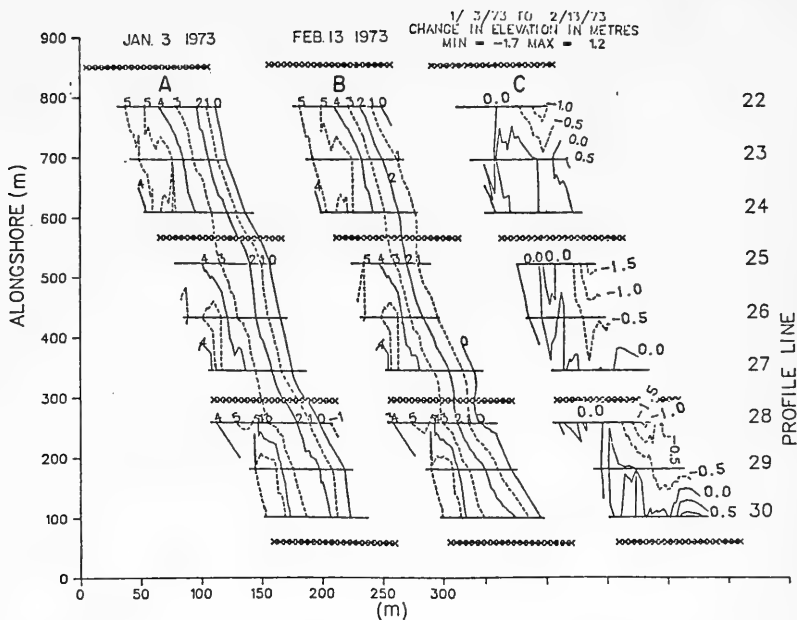
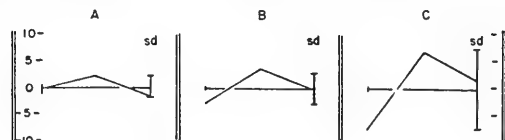


Figure 27. Contoured beach topography for surveys taken 2 January and 13 February 1973 and the contoured difference between surveys. The contour between the groin and the profile line was estimated.

a) MSL SHORELINE



b) ABOVE MSL SAND VOLUME

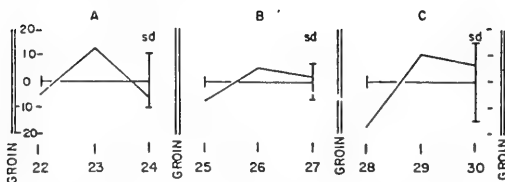


Figure 28. Net change in MSL shoreline (m) and unit volume (m^3/m) from 29 August 1972 to 11 June 1973 for each profile line with mean change in each groin cell removed. Standard deviation (sd) of each mean is shown at the right of each cell.

meters per meter. The reason for the large difference between cell A and the two other cells is not known. Each cell shows a change in above MSL volume at the north side which is negative relative to the mean while the south side of the cell is less than the mean but positive in the two southern cells. The latter suggests net transport toward the south while cell A suggests a slight net transport toward the north. Rates of transport cannot be determined from the available data. This section of beach may be the site of a local nodal point in sand transport direction. Similar, closely spaced profile line studies in groin cells to the north, would be necessary to confirm this possibility. The variability in the change within each groin cell indicates that repeated measurements of single profile lines placed between adjacent closely spaced groins may not accurately reflect the change within that cell. Figure 28 indicates that profile lines located in the middle of a groin cell would show a net change greater than the mean, while profile lines near the groins would show a lesser or negative rate of change. At least three profile lines should be located within a groin cell in order to resolve the direction of net transport and amount of change. The distribution of change within a cell also implies that regression estimates of the rate of change in MSL shoreline or above MSL sand volume from the available data from other profile lines would not provide a meaningful indication of beach development.

V. DISCUSSION

1. Profile Changes.

The profile lines along the Long Beach Island beaches are characterized by a high degree of variability that occurs on a number of time and space scales. The empirical eigenfunction analysis has shown (Fig. 22) that the variability generally increases from the north end of the island, which has been stabilized by the Barnegat Inlet jetties, toward the unstructured Beach Haven Inlet. The profile lines between these two extremes have, with the exception of the groin field studies, been placed along the beach with little regard for proximity or relationship to the groins. The beach variability prior to groin construction is unknown so it is not possible to assess the effect the structures have had on this factor. A long-term study on an unstructured beach in a similar environmental setting would provide a useful contrast of processes. Island Beach State Park, north of Barnegat Inlet, may provide a reasonable candidate site for a comparative study.

The erosion or accretion rate of the Long Beach Island shoreline remains unresolved. Linear regression analysis was used on profile lines 1 to 21 to estimate the rate and direction of change in the MSL shoreline position. All except five of the profile lines (7, 8, 9, 11, 21) showed a positive correlation between the MSL shoreline and time. The mean accretion rate of 0.56 meter per year indicates that the beaches along the island are building seaward even in the period of long-term sea level rise. The method of Weggel (1979) was used to estimate the expected erosion rate caused by the latter. This estimate is 0.68 meter per year. Both of these must be treated with caution since they are based on assumptions that may not be valid for the Long Beach Island system.

The high variability in the MSL position and sand volume may also be related to the position of the profile lines relative to offshore features, such as sandbars and the shoreface-connected shoals. The wave refraction diagrams (Figs. 11 to 16) show that the shoals refract simple waves approaching from, for instance, the northeast in complicated ways. Measurements of flow over the shoals and the longshore variation in wave characteristics may be necessary to adequately resolve this question.

The available data were evaluated to determine the direction and rate of net longshore transport. Neither can be determined with certainty using these data, but strong arguments can be made for a net southerly transport, at least south of profile line 24. Most severe storms arrive from the east or northeast, generating longshore currents and oblique waves which transport material from north to south. Clear evidence of this exists in the single year study of the closely spaced profile lines. The unfortunate locations of other single profile lines make direct confirmation of this phenomenon from profile line evidence impossible. Reversals in transport direction have been shown to exist, and evidence of a possible node in the transport is shown along closely spaced profile lines 22, 23, and 24.

Calculations of the rate of littoral transport are based upon a linear relationship between the volume transport rate and the longshore component of wave energy flux evaluated at the breaker zone, P_{ls} , (U.S. Army, Corps of Engineers, Coastal Engineering Research Center, 1977). The shallow-water breaking criterion and solitary wave theory can be used to show that P_{ls} is quite sensitive to wave height and breaker angle. Relatively small errors in these values cause large errors in P_{ls} . Visual estimates of breaker conditions, available for part of the study, indicated a predominance of normal wave incidence with this zone defined as waves approaching from directly offshore to 5° on either side. Transport may, therefore, have been in either direction. The transport rate relationship to energy flux is based upon field measurements on plane, unstructured beaches and does not account for effects of groins, inlets, tidal currents or offshore topography. The uncertainty caused by these factors makes quantitative estimates of the transport rate meaningless.

2. Civil Engineering Implications.

The Long Beach Island beaches were identified as experiencing "critical erosion" (U.S. Army Engineer Division, North Atlantic, 1971). The rate of erosion and reason for this designation, however, were not specified. Evaluation of these BEP data indicates that the beaches are accreting or remaining stable at several locations and in spite of an expected erosion trend induced by sea level rise. Several of the profile lines show a marked increase in sand volume after groin construction began in 1964. Profile lines 14, 16, and 17 increased in sand volume and have remained relatively constant since about 1968 (App. D). Whether this trend is a result of groin construction or a natural beach cycle is unknown. Profile line 21 at the south end of Long Beach Island is near the last structure before the wildlife refuge and has shown a marked erosion trend over the course of the study which may be related to the sand trapping by the groins to the north. This conclusion must remain tentative since no profile data are available prior to the BEP.

The seasonal cycles in the beach profiles shown by the empirical eigenfunction analysis and the closely spaced profile lines have implications for beach-fill operations and the location of feeder beaches. Though net transport is toward the south, south of profile line 24, this region may be the site of a local transport node with the net drift north of this region toward the north. A feeder beach located north of the node would not supply sand to the southern beaches. Sand dredged from Barnegat Inlet during the summer of 1979 and placed on the beaches in the vicinity of profile line 3 was probably transported northward or offshore where it reentered the inlet system rather than nourished the southern beaches. Other nodal points, either temporary or permanent, may exist along the island. Predicting their location is, at present, not possible. Closely spaced profile lines placed within groin cells would be necessary to determine their position and motion. Studies on the effectiveness of the beach fill and its direction of transport are being conducted (Ashley, Halsey, and Farrell, 1980).

The profile envelopes (App. E) show that the sweep zones of the beach profiles have been considerable over the period of study. Variations of as much as 4 meters are not unusual in the region of the MSL intercept. This vertical excursion of the profile must be taken into account in the design of pipelines, coastal structures, and other protection measures.

Limitations in the amount of information obtainable from the Long Beach Island data set may be overcome in future studies by alterations in the sampling design which take into account the beach structures, offshore topography, nearshore below MSL changes, waves, currents and the anticipated methods of data analysis. The closely spaced profile line studies show that beach changes within a groin cell cannot be determined with fewer than three profile lines per cell. Comparative analysis may be done with this data set and that from Westhampton, New York (DeWall, 1979) to provide additional insight into the dynamics of groin cells. The distribution of profile line measurements depends upon the scale of the processes under consideration and may require that pilot studies be carried out for at least one season before the final design is adopted. It is likely that each beach environment will require a somewhat different approach. The offshore topography must be considered when laying out the profile lines. The linear shoals off of Long Beach Island certainly affect the distribution of sand transport by causing differential wave refraction. Profile lines should be extended farther offshore than the -2-foot MSL position as was done in this study. The depth of measurement depends upon the wave regime, currents, expected depth of sediment movement and the resources of the measurement team, but should extend beyond the breaker zone. The spacing and timing of profile line measurement again depend upon the scales of the processes but also on the expected method of analysis. Statistical methods including eigenfunction analysis work best when data are evenly distributed in time and space. Sets of closely spaced profile lines laid out in selected groin fields along the island would have been appropriate for Long Beach Island. The frequency of surveys depends upon the expected total length of the time series and the resources available. Monitoring studies should last several years to obtain adequate statistics of seasonal variability with surveys taken each month for longer studies and twice each month for short studies. Beach changes during storms are highly nonlinear and can be extreme in a short amount of time. These events should be monitored individually. Wave information is best obtained by a reliable gage giving height and direction. Adequate devices are generally not available or are very expensive. Well-trained observers

can be substituted for machinery for much of the study, but periods of wave data may be closely correlated with beach changes at selected times in the study period. Offshore surveys to depths of 10 meters should be made twice each year to provide a total record of nearshore change.

VI. SUMMARY

A total of 2,158 profile surveys were taken at 32 profile line locations along Long Beach Island, New Jersey, from 26 September 1962 to 12 June 1973. These surveys included closely spaced measurements taken at nine locations within three adjacent groin cells for a period of nearly 1 year (August 1972 to June 1973). The data were checked and verified by CERC personnel and subjected to a number of computer analysis techniques to obtain changes between surveys in above MSL unit volume, change in profile area, change in MSL shoreline intercept, profile envelopes, and linear regression trends. Additional processing was done using empirical eigenfunctions. The temporal and spatial changes of the profile lines were related to environmental process variables such as wind, waves, and storms.

Seventy-seven storm events were identified over the study period from historical records. Beach changes which could be related to four individual storms were selected for detailed analysis. The most severe erosion of these four storms (between 23 October and 13 November 1968) caused a recession of the MSL shoreline of about 22 meters at profile line 4 where the volumetric change was nearly 10 cubic meters per meter. In spite of the generally severe erosion, several of the profile lines accreted during the interval emphasizing the extreme variability which was a general characteristic of the beach changes during the study. This means that longtime series studies are required to obtain statistical data on general beach trends.

Detailed studies within three groin cells showed that at least three profile lines within a groin cell are necessary to determine the net erosion trend and transport direction. The change in beach volume or MSL intercept shown by a single profile line in a groin cell does not necessarily represent a characteristic change for that cell. Distance weighted volume calculations made from single profiles along a structured beach, therefore, are of questionable value. The closely spaced profiles and analysis of storm directions strongly support previous conclusions of a net southward littoral transport at least south of profile line 24. Evidence for a nodal area exists in that region.

Regression analysis of the MSL intercept with time showed most profile lines accreting. The maximum and minimum accretion values were 2.3 and 0.24 meter per year at profile lines 19 and 10, respectively. The maximum erosion occurred at profile line 21 which is receding at an annual rate of more than 5 meters per year. The low R^2 value for most of the regression equations emphasizes the variability of the individual profile lines. Profile line 21, however, has shown a persistent erosion trend over the course of the study. There is no discernible pattern to the regression values along the beaches. These rates must be treated with caution since they imply a degree of predictability to the long-term trend which does not exist.

Though transport is toward the south along most of the beach, the closely spaced profile lines show shifts in the beach pattern that indicate reversals

when waves arrive from the southeast. These reversals and the location of nodal zones should be considered in the development of future beach protection strategies.

Suggestions for the design of future beach monitoring studies have been developed. These require that the consideration be given the method of analysis when selecting the temporal and spatial scales of the beach profile lines. Other factors that must be considered are: location of profile lines relative to structures, offshore topography, possible nodal zones, and available resources. Pilot studies are suggested before the final monitoring design is adopted.

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APPENDIX A

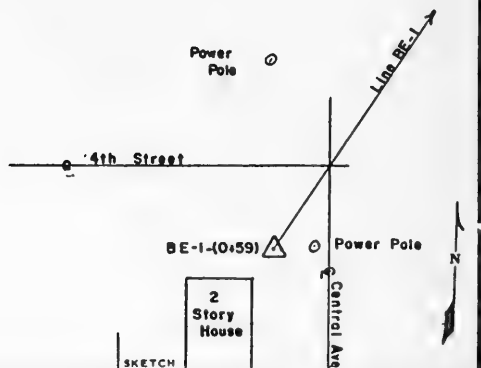
PROFILE LINE DOCUMENTATION

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(NORTHING)(EASTING) (FT) 338 277		(EASTING)(NORTHING) (FT) 2,157 882		GRID AND ZONE NJ Trans. Mercator		ESTABLISHED BY (AGENCY) Corps of Engineers					
(NORTHING)(EASTING) (M)		(EASTING)(NORTHING) (M)		GRID AND ZONE		DATE 7 Nov 1975					
TO OBTAIN TO OBTAIN				GRID AZIMUTH, ADD GRID AZ. (ADD)(SUB.)				TO THE GEODETIC AZIMUTH TO THE GEODETIC AZIMUTH			
OBJECT		AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH		GEOD. DISTANCE (METERS) (FEET)		GRID DISTANCE (METERS) (FEET)			

The station is located at the north end of Long Beach Island at Barnegat Light at the intersection of 4th St. and Central Ave. It is 58.60' south of a PK nail in a power pole (B.T.301148); 10.00' west of a PK nail in a power pole (no number); and 9.35' NE of the NE corner of a two story dwelling at 401 4th St.

The station is set flush with the ground.

Azimuth of line BE-1 = 257°58'



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 67, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U S A		TYPE OF MARK Standard Disk		STATION CERC PROFILE 2 BE 2	
LOCALITY Barnegat Lt., N.J.		STAMPING ON MARK B E, -2-62		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°45'27.20"		LONGITUDE 74°06'14.52"		ELEVATION (FT) 12.02 (M)	
(NORTHING)(EASTING) 337 122		(EASTING)(NORTHING) 2,158 186		DATUM S.L.D. 1929	
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				DATE 7 Nov 1975	
				ORDER	

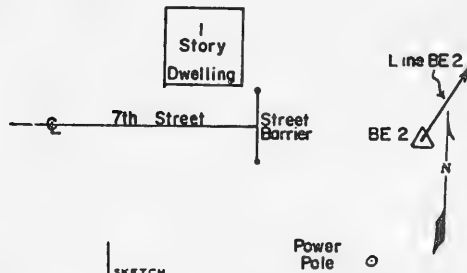
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TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located at the north end of Long Beach Island at Barnegat Light at the east end of 7th St. It is set 4.0' below the surface of sand dune. A 4" x 4" witness post is placed directly over the station.

The station is 60.80' SE of the SE corner of a one story dwelling; 29.74' NE of a FK nail in pole (Ace T7747); and 28.21' SE of PK nail in north post of street barrier.

Azimuth of line BE-2 = 262°03'



SKETCH

DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

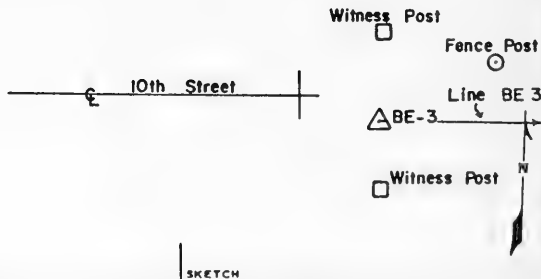
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-227; the proponent
agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION B.E. - 3 <i>CERC PROFILE 3</i>	
LOCALITY Barnegat Light, N.J.		STAMPING ON MARK B. E. -3-62		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°45'16.90"		LONGITUDE 74°06'15.24"		ELEVATION (FT.) 18.43	
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(NORTHING)(EASTING) (FT.) (M)		(EASTING)(NORTHING) (FT.) (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	GRID DISTANCE (FEET)

Station is located at the northern end of Long Beach Island at Barnegat Light, approximately 200' east of east end of 10th St. on top of a high sand dune. The station is 7.32' SW of PK nail in top of fence post; 5.00' south of PK nail in 4" x 4" witness post; and 5.00' north of PK nail in 4" x 4" witness post.

The station is flush with the ground.

Azimuth of line BE-3 = 294-39



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the preponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. 4 0+10	CERC PROFILE 4	
LOCALITY Barnegat Light, N.J.	STAMPING ON MARK B.E. -4 0+10	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION (FT) 10.99	
LATITUDE 39° 44' 33.38"	LONGITUDE 74° 06' 50.32"	DATUM	DATUM S.L.D. 1925	
(NORTHING)(EASTING) (FT) 331 659 (M)	(EASTING)(NORTHING) (FT) 2,155 424 (M)	GRID AND ZONE N.J. Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 11 Nov 1973	ORDER

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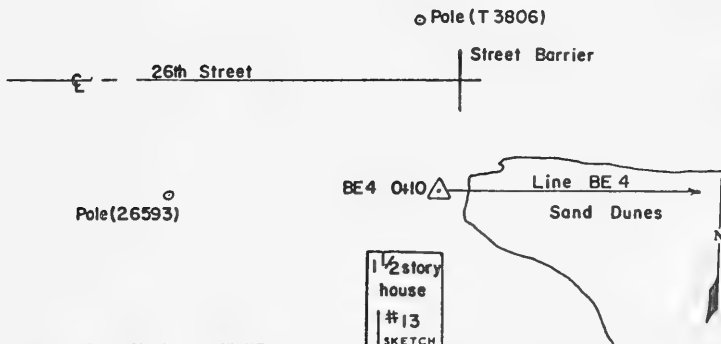
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is located at the northern end of Long Beach Island in Barnegat Light at the east end of 26th Street.

The station is; 66.20' south of PK nail in pole (#T 3806); 50.41' east of PI nail in pole (#26593); 35.00' south of ϵ of 26th Street; and 31.00' north of NE corner of house at SE end of 26th Street.

The station is set flush with the ground at the toe of a sand dune.

Azimuth of line BE-4 $\hat{=}$ 296-46



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent
 agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disc		STATION B. E. -5A 0+00 15' North	
LOCALITY Long Beach Is. Loveladies, NJ		STAMPING ON MARK B. E. -5A 0+00 NO		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°43' 46.61"		LONGITUDE 74°07' 21.38"		ELEVATION (FT) 7.92	
LONGITUDE 326 912		DATUM S.L.D. 1929		ESTABLISHED BY (AGENCY) Corps of Engineers	
NORTHING (EASTING) 326 912		EASTING (NORTHING) 2 153 026		GRID AND ZONE NJ Trans Merc.	
NORTHING (EASTING) (M)		EASTING (NORTHING) (M)		DATE 11 Nov 75	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	

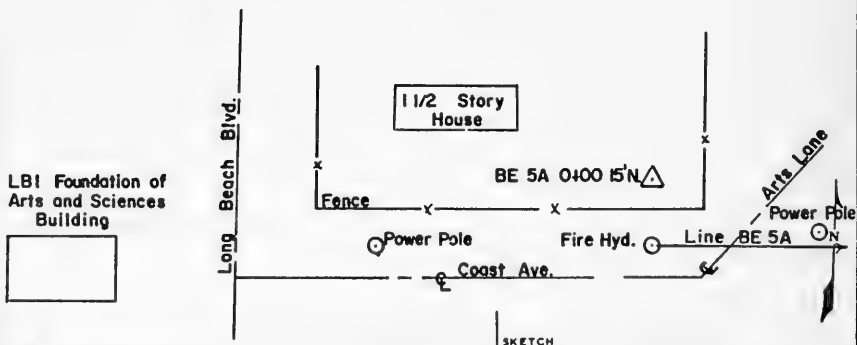
OBJECT	AZIMUTH OR DIRECTION (GEODETIC (GRID) (MAGNETIC))	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is located at the northern end of Long Beach Island at Loveladies near the intersection of Coast Ave. and Arts Lane in the yard of the Martin Residence on the NW corner of the intersection.

Station is 75.18' NW of PK nail in pole (#T-15903), 58.40' NE of PK nail in pole (P35348), 50' west of Arts Lane, 32.00' SE of SE corner of the Martin house, 30' north of Coast Ave., and 15.00' north of top of fire hydrant on the north side of Coast Avenue.

Station is set 0.1' below the surface of the ground.

Azimuth of line BE-5A = 290-02



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.	TYPE OF MARK Standard disc	STATION B. E. -6 4+15	
LOCALITY Long Beach Is, Loveladies, NJ	STAMPING ON MARK B. E. -6 4+15	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION (FT.) 18.40
LATITUDE 39°43'11.8P"	LONGITUDE 74°07'34.83"	DATUM NJ Trans Merc	DATUM S. L. D. 1929
(NORTHING)(EASTING) X 323 392	(EASTING)(NORTHING) X 2 151 996	GRID AND ZONE	ESTABLISHED BY (AGENCY) Corps of Engineers
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	DATE 11 Nov 75

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

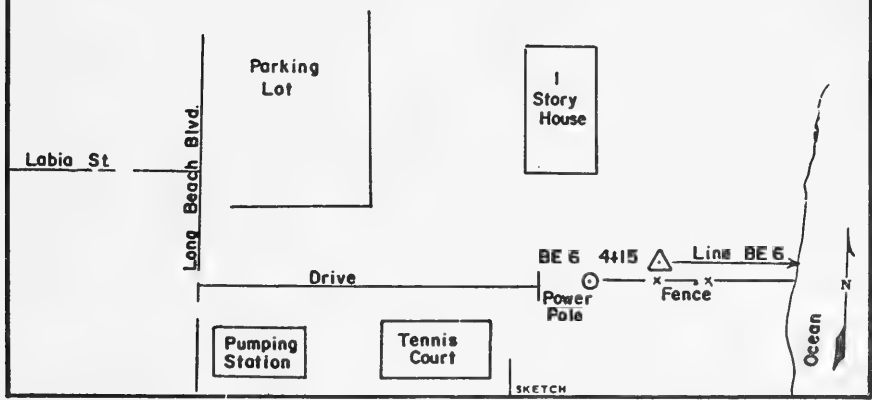
Station is located on the northern end of Long Beach Island at Loveladies near the intersection of Long Beach Blvd. and Labia Street.

Station is 35.75' east of PK nail in pole (Ace 3463), 28.68' SE of SE corner of porch decking on one story swelling, 4.47' north of a PK nail in top of fence post.

Station is set flush with the ground on slope of a large dune.

Disc reported missing March 1978 (W.A. Birkemeier).

Azimuth of line BE -6 = 290-42



DA FORM 1959 REPLACES DA FORMS 1958 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. -7 3+58	
LOCALITY Harvey Cedars, NJ	STAMPING ON MARK B.E. -7 3+58	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 19.29 (FT) (M)
LATITUDE 39°42'41.52"	LONGITUDE 74°07'50.02"	DATUM	DATUM S.L.D. 1929
(NORTHING)(EASTING) (FT) 320 313 (M)	(EASTING)(NORTHING) (FT) 2,150 828 (M)	GRID AND ZONE N.J. Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 11 Nov 1975

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETTIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETTIC AZIMUTH

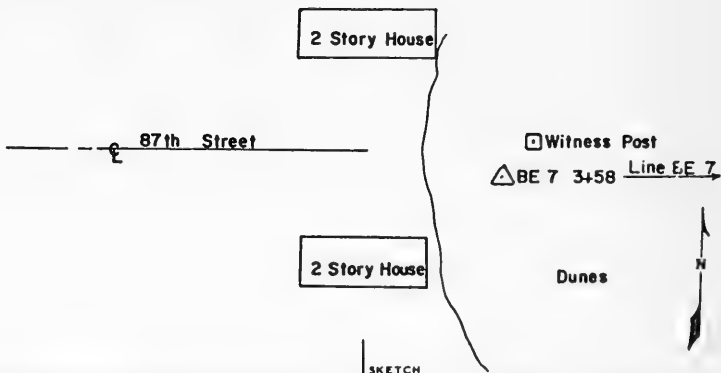
OBJECT	AZIMUTH OR DIRECTION (GEODETTIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located at Harvey Cedars on Long Beach Island at the east end of 87th Street.

The station is 50.64' SE of the SE corner of a house on the north side of 87th Street; 40.30' NE of the NE corner of a house on the south side of 87th Street; and 3.0' SW of a 4" x 4" witness post.

The station is set on top of a high sand dune 0.3' below the surface.

Azimuth of line BE-7 = 289-41



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. - 8 (-)0+22 15' South	CERL PROFILE 8	
LOCALITY Harvey Cedars, N.J.	STAMPING ON MARK B.E. -8 -0+22 15' So.	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION (FT) 6.16	
LATITUDE 39°41'55.37"	LONGITUDE 74 08'19.30"	DATUM	DATUM S.L.D. 1929	
(NORTHING)(EASTING) (FT) 315 630	(EASTING)(NORTHING) (FT) 2,148 566	GRID AND ZONE NJ Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	DATE 11 Nov 1975	ORDER

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

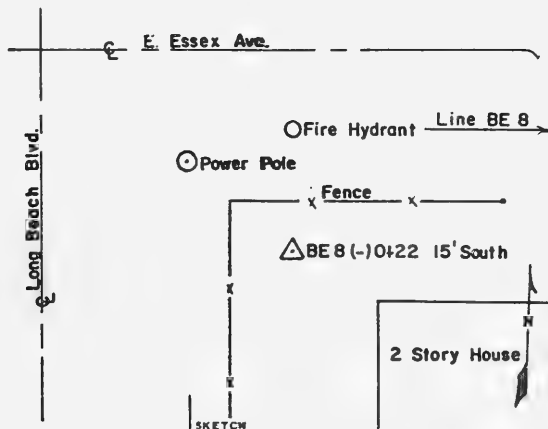
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The Station is located at Harvey Cedars on Long Beach Island at the SE corner of the intersection of Long Beach Blvd. and E. Essex Ave. It is inside the north corner of the fence on the property of house #2.

The station is 35.52' NW of the NW corner of house on the SE corner of the intersection of Long Beach Blvd. and E. Essex Ave.; 21.00' SE of PK nail in telephone pole (#8140); 18.37' west of PK nail in top of east end of fence post; and 15.00' south of fire hydrant on south side of Essex Ave.

The station is set flush with the ground.

Azimuth of line BE-8 = 296-39



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the preprint agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION CERC PROFILE 9 B.E. 9 0+82 15' North	
LOCALITY Harvey Cedars, NJ		STAMPING ON MARK B.E. -9 0+82 15' NO.		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°41'37.17"		LONGITUDE 74°08'30.26"		ELEVATION (FT) 7.60	
(NORTHING)(EASTING) 313 783		(EASTING)(NORTHING) 2,147 721		DATUM S.L.D. 1929	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		GRID AND ZONE NJ Trans. Mercator	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADDISUB.)		TO THE GEODETIC AZIMUTH	
DATE 19 Nov 75		ORDER		CORPS OF ENGINEERS	

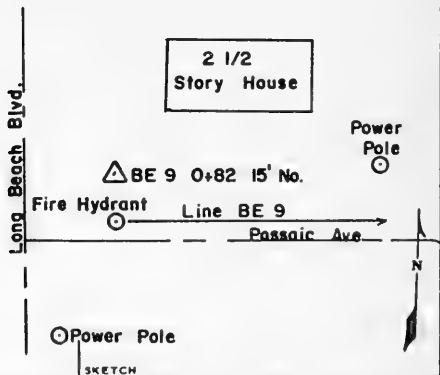
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (FEET)	GRID DISTANCE (METERS)	GRID DISTANCE (FEET)

The station is located on Long Beach Island in Harvey Cedars on NE corner of the intersection of Passaic Ave. and Long Beach Blvd. on the SW corner of the Pearlstein property.

The station is 118.19' west of PK nail in pole (T3917); 67.00' NE of PK nail in pole (T1877); 41.82' SW of SW corner of 2½ story house; and 15.00' north of fire hydrant on north side of Passaic Ave.

The station is set flush with the ground.

Azimuth of line BE 9 = 296-52



DA FORM 1959
OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

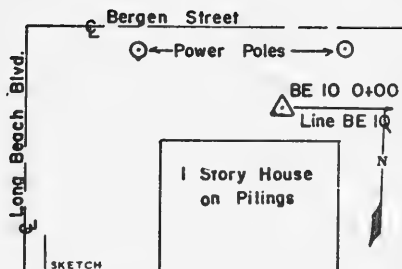
COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION CERC PROFILE 10 B.E. 10 0+00	
LOCALITY Harvey Cedars, NJ	STAMPING ON MARK B.E. -10 0+00	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 9.23 (FT) (M)
LATITUDE 39° 41' 12.76"	LONGITUDE 74° 08' 44.23"	DATUM	DATUM S.L.D., 1929
(NORTHING)(EASTING) (FT) 311 307 (M)	(EASTING)(NORTHING) (FT) 2,146 643 (M)	GRID AND ZONE NJ Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 19 Nov 75

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETTIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETTIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETTIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located on Long Beach Island at Harvey Cedars south of south edge of Bergen Ave. near the intersection of Bergen St. and Long Beach Blvd.
 The station is 36.69' SE of PK nail in pole (T15248); 32.46' SW of PK nail in pole (T3484; and 17.00' NE of NW corner of one story house on piling which is the second house from the beach.
 The station is set 0.3' below the surface of the ground.

Azimuth of line BE 10 = 297-31



DA FORM 1959
OCT 64 1959
REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent
 agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. 11 3+25	CERL PROFILE II	
LOCALITY North Beach, NJ	STAMPING ON MARK B.E.-11 3+25	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 19.50 (FT) (M)	
LATITUDE 39°40'41.05"	LONGITUDE 74°09'05.15"	DATUM	DATUM S.L.D. 1929	
(NORTHING)(EASTING) (FT) 308 089	(EASTING)(NORTHING) (FT) 2,145 026	GRID AND ZONE NJ Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	DATE 19 Nov 75	ORDER

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

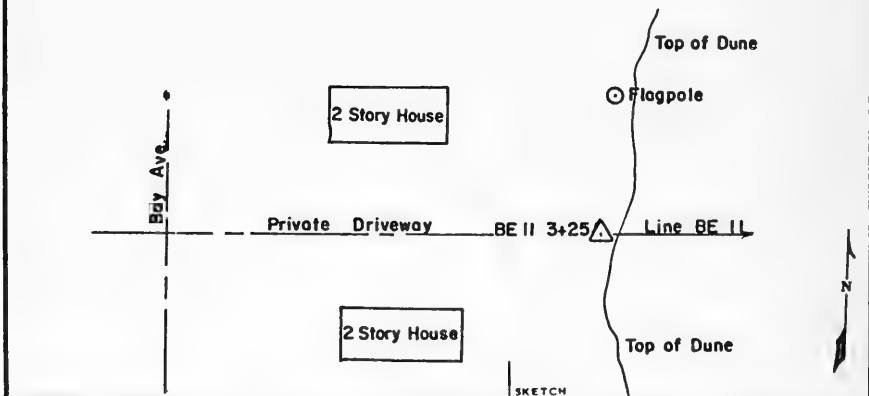
The station is located on Long Beach Island in North Beach, west of Bay Ave. at east end of a private driveway which intersects Bay Ave. in the vicinity of pole #8066.

The station is NE of NE corner of porch on south side of the driveway; 51.15' SE of SE corner of house on north side of driveway; 48.47' south of flagpole on beach; and 1.0' east of 4"x4" witness post.

The station is set flush with the ground.

Immediately east of witness post.

Azimuth of line BE 11 = 302-13



DA FORM 1959 REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION B.E. 12 0+00	
LOCALITY Surf City, N.J.		STAMPING ON MARK B.E. 12 1962		AGENCY (CAST MARKS) Corps of Engineers	
LATITUDE 39°39'59.37"		LONGITUDE 74°09'37.54"		ELEVATION (FT) 14.88 (M)	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		DATUM S.L.D. 1929	
303 857		2,142 518		GRID AND ZONE NJ Trans. Mercator	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
				DATE Oct 1962	
				ORDEP	

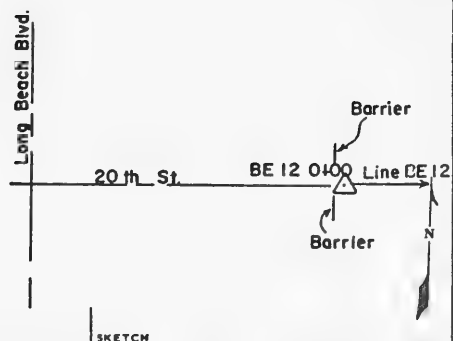
TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The Station is located on Long Beach Island in Surf City at the east end of 20th Street and 497.0' east of Long Beach Blvd. along the centerline of 20th Street.

Disc reported missing March 1978 (W.A. Warkemeier).

Azimuth of line BE 12 = 301-59



DA FORM 1959 REPLACES DA FORMS 1958 AND 1960, 1 FEB 67, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. 13A 0+50	CERC PROFILE 13	
LOCALITY Ship Bottom, NJ	STAMPING ON MARK B.E. -13A 0+50	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 14.52	(FT) (NO)
LATITUDE 39°38'47.99"	LONGITUDE 74°10'35.18"	DATUM	DATUM S.L.D. 1929	
(NORTHING)(EASTING) 296 610	(FT) (NO)	(EASTING)(NORTHING) 2,138 049	(FT) (NO)	GRID AND ZONE NJ Trans. Mercator
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	ESTABLISHED BY (AGENCY) Corps of Engineers	
TO OBTAIN		GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH	

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

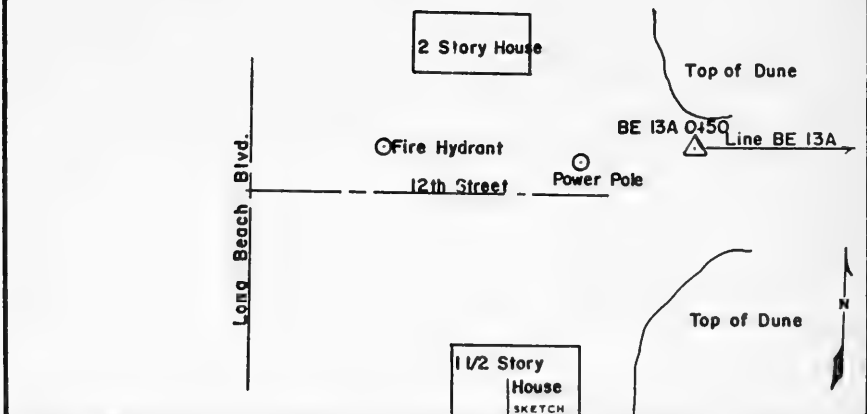
Station is located on Long Beach Island in Ship Bottom at the east end of 12th Street.

Station is 64.00' NE of NE corner of house south of 12th St.; 50.00' east of fire hydrant on north side of street; 31.50' SE of SE corner of house north of street; and 11.90' east of PK nail in pole #P9015.

Station is set flush with the ground.

Just south of entrance onto island.

Azimuth of line BE 13A = 301-52



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. -14 0+79		CERC PROFILE 14	
LOCALITY Long Beach Isl Ship Bottom, NJ		STAMPING ON MARK B. E. -14 0+79		AGENCY (CAST IN MARKS) Corps of Engineers		ELEVATION (FT) 14.12	
LATITUDE 39°38'05.33"		LONGITUDE 74°11'07.63"		DATUM S. L. D. 1929			
(NORTHING)(EASTING) (FT) 292 280		(EASTING)(NORTHING) (FT) 2 135 534		GRID AND ZONE NJ Trans Mercator		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		GRID AND ZONE		DATE 17 Feb 78	

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

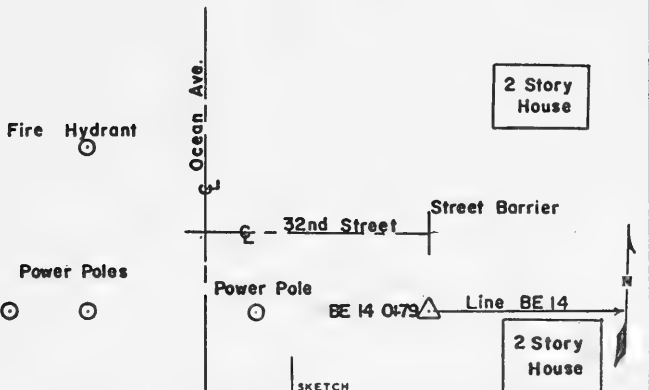
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE		GRID DISTANCE	
			(METERS)	(FEET)	(METERS)	(FEET)

Station is on Long Beach Island at Ship Bottom at east end of 32nd Street near intersection of 32nd Street and Ocean Ave.

Station is 85.60' SE of top of fire hydrant NW of intersection of 32nd Street and Ocean Ave., 50.65' SE of SW corner of dwelling NE corner intersection 32nd Street and Ocean Ave., 50.00' east of Ocean Ave. ϕ , 29.20' east of PK nail in pole (AC25775) 19.30' west of NW corner of swelling at SE corner intersection 32nd Street and Ocean Ave.

Station is flush with the ground.

Azimuth of Line BE-14 = 299-18



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. 15 3+30	
LOCALITY Beach Haven Crest NJ		STAMPING ON MARK B. E. -15 3+30		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39° 36' 30.98"		LONGITUDE 74° 12' 11.61"		ELEVATION (FT) 14.98	
(NORTHING) (FEET)		(EASTING) (FEET)		DATUM S. L. D. 1929	
282 707		2,130 578		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING) (FEET)		(EASTING) (FEET)		DATE 17 Feb 78	
(M)		(M)		ORDER	

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD) (SUB.)	TO THE GEODETIC AZIMUTH

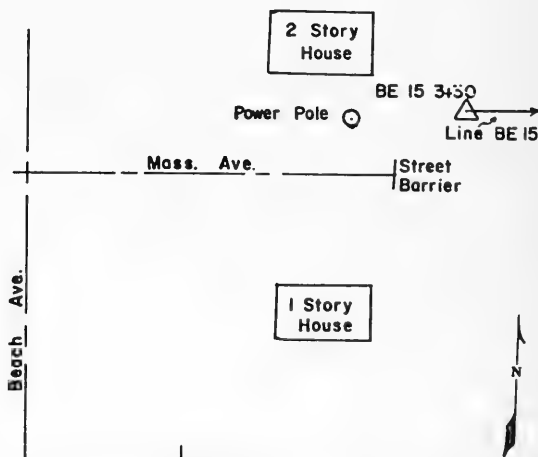
OBJECT	AZIMUTH OR DIRECTION (GEODETIC) (GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS) (FEET)

The station is located on Long Beach Island in Beach Haven Crest, one mile south of Beach Arlington Tank at the east end of Massachusetts Ave. at the toe of the sand dunes.

The station is 43.28' NE of NE corner of porch of house south of east end of Mass. Ave.; 40.00' east of PK nail in pole T-98 on north side of Mass. Ave.; and 17.90' SE of SE corner of porch of house north of Mass. Ave.

The station is set 1.0' below the ground surface.

Azimuth of line BE 15 = 300-35



SKETCH

DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 67, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION B.E. 16 0+81	
LOCALITY Beach Haven Terrace		STAMPING OR MARK B. E. -16 0+81		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°35'17.72"		LONGITUDE 74°13'06.46"		ELEVATION (FT) 16.13 (M)	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATUM S. L. D. 1929	
275 273 (M)		2,126 322 (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATE 16 Feb 78	
(M)		(M)		ORDER	

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

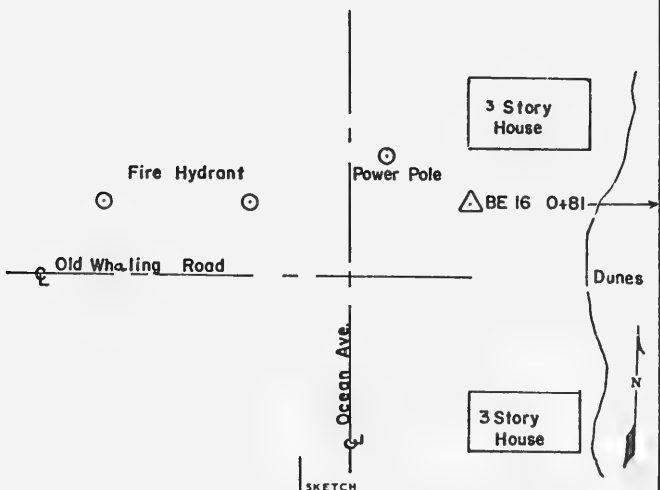
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is on Long Beach Island in Beach Haven Terrace on the north side and east end of Old Whaling Rd. near the centerline of Ocean Ave. and Old Whaling Rd.

The station is 53.40' north of NW corner of house at SE corner of intersection 48.00' east of Ocean Ave. centerline; 35.00' SE of PK nail in pole #ACT-4745; and 23.89' south of SW corner of house at NE corner of intersection.

The station is set flush with the ground.

Azimuth of line BE 16 = 297-11



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

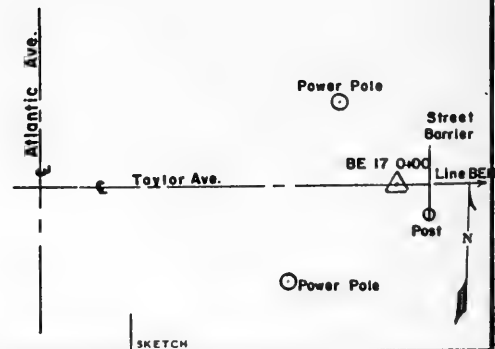
COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. 17 0+00	
LOCALITY Beach Haven N. J.		STAMPING ON MARK B. E. -17-62, ELEY. 13. 49		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°34'01.59"		LONGITUDE 74°13'57.66"		ELEVATION (FT) 13.49	
NORTHING (EASTING) (FT) (M)		EASTING (NORTHING) (FT) (M)		DATUM S. L. D. 1929	
267 551		2,122 350		ESTABLISHED BY (AGENCY) NJ Trans Mercator	
				CORPS OF ENGINEERS	
				DATE 25 Nov 75	
				ORDER	

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADD) (SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC) (GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE		GRID DISTANCE	
			(METERS)	(FEET)	(METERS)	(FEET)

The station is on Long Beach Island at Beach Haven on the centerline and east end of Taylor Ave.
 Station is 50.45' SE of PK nail in pole #t-5093; 42.60' NE of PK nail in pole #ACT568; and 6.08' NW of PK nail in street barrier post.
 Station is set flush with the ground.

Azimuth of line BE 17 = 295-58



DA FORM 1959 REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

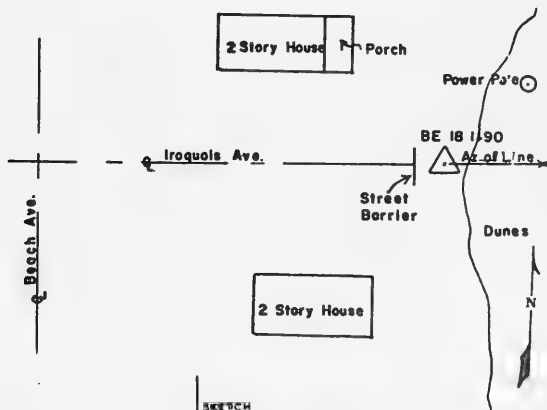
COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION CERC PROFILE 18 BE 18 1+90	
LOCALITY Beach Haven, N.J.		STAMPING ON MARK B.E. -18 1+90		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39° 33' 07.57"		LONGITUDE 74° 14' 44.49"		ELEVATION (FT) 14.99 (M)	
(NORTHING)(FEET) 262 067 (M)		(EASTING)(NORTHING) 2,118 709 (M)		DATUM S.L.D. 1929	
(NORTHING)(EASTING) (M)		(EASTING)(NORTHING) (M)		GRID AND ZONE NJ Trans. Mercator	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	GRID DISTANCE (FEET)

The station is located on Long Beach Island in Beach Haven at the east end of Iroquois Ave. extended.

Station is 51.51' NE of corner of porch of house at SE end of Iroquois Ave.; 41.40' SW of PK nail in pole (no number); 41.00' SE of SE corner of porch at the NE end of Iroquois Ave.; and 3.0' east of street barrier at the end of Iroquois Ave.

Station is set 0.2' below the ground.

Azimuth of line BE 18 = 297-50



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disc		STATION CERC PROFILE 19	
LOCALITY Long Beach Isl Holgate, NJ		STAMPING ON MARK B. E. - 19 0+10		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°32' 33.04"		LONGITUDE 74°15' 20.91"		ELEVATION (FT) 7.31	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATUM S. L. D. 1929	
258 561		2 115 872		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATE 16 Feb 78	
				ORDER	

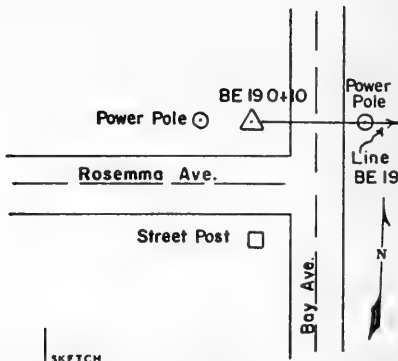
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TO OBTAIN GRID AZ. (ADD) (SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is on Long Beach Island in Holgate at NW corner of intersection of Bay and Rosemma Ave.

Station is 52.90' west of a PK nail in power pole #T782; 44.00' north of street post at SW corner of intersection of Bay and Rosemma Ave; and 11.00' east of PK nail in power pole #P1198.

Station is flush with the ground.



DA FORM 1959

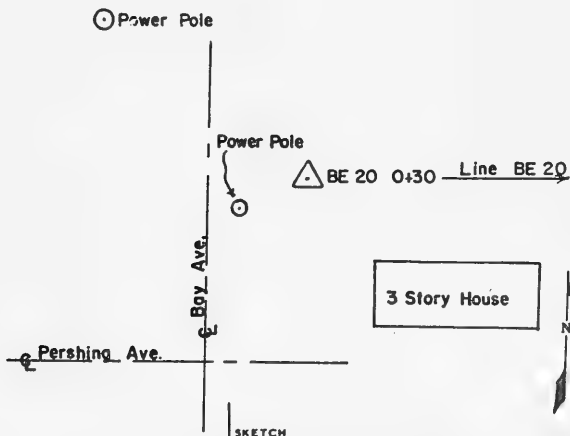
REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION CERC PROFILE 20 B. E. -20 0+30	
LOCALITY Long Beach Isl. Holgate, NJ		STAMPING ON MARK B. E. -20 0+30		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39 32 05.48		LONGITUDE 74 15 39.08		ELEVATION (FT) 6.48 DNK	
(NORTHING)(EASTING) (FT) 255 766 XXXX		(EASTING)(NORTHING) (FT) 2 114 461 XXXX		DATUM S. L. D. 1929	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	(FEET)	GRID DISTANCE (METERS) (FEET)

Station is on Long Beach Island in Holgate east of Bay Ave. and north of Pershing Ave.
 Station is 118.00' north of Pershing Ave., 76.65' SE of PK nail in pole #P11218, 64.70' NW of NW corner of house at NE corner of intersection, 30.00' east of Bay Ave., 7.39' NE of FK nail in pole #71.
 Station is flush with the ground surface.

Azimuth of Line = 299-04



DA FORM 1959
1 OCT 64

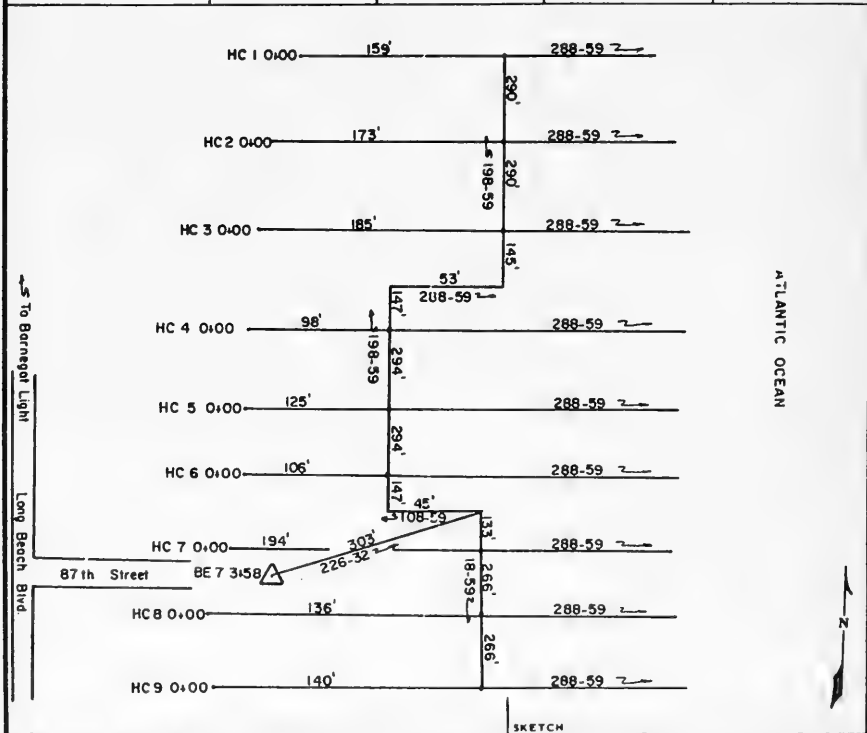
REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK		STATION Harvey Cedars Beach Erosion Lines	
LOCALITY Harvey Cedars, NJ		STAMPING ON MARK		AGENCY (CAST IN MARKS)	
LATITUDE		LONGITUDE		DATUM	
(NORTHING)(EASTING)	(FT)	(EASTING)(NORTHING)	(FT)	GRID AND ZONE	
(M)	(M)	(M)	(M)	ESTABLISHED BY (AGENCY)	
(NORTHING)(EASTING)	(FT)	(EASTING)(NORTHING)	(FT)	GRID AND ZONE	
(M)	(M)	(M)	(M)	DATE	ORDER

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)



DA FORM 1959 REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK		STATION Harvey Cedars Beach Erosion Lines	
LOCALITY Long Beach Is. Harvey Cedars, NJ		STAMPING ON MARK		AGENCY (CAST IN MARKS) ELEVATION (FT) (M)	
LATITUDE		LONGITUDE		DATUM N. G. V. D. 1929	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE N. J. Transverse Mer.		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE		DATE	ORDER
TO OBTAIN GRID AZIMUTH, ADD			TO THE GEODETIC AZIMUTH		
TO OBTAIN GRID AZ. (ADD)(SUB.)			TO THE GEODETIC AZIMUTH		
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	(FEET)	GRID DISTANCE (METERS) (FEET)

The Beach Erosion lines are located on Long Beach Island at Harvey Cedars in the vicinity of the intersection of 87th St. and Long Beach Blvd. The coordinates and elevations of the stations were established from B.E. 7 3+58. A list of coordinates and elevations follows:

STATION	<u>LEVEE</u> PROFILE	LATITUDE	DEPARTURE	ELEV. (ft.)	TYPE OF MARK
BE 7 3+58	7	320 313	2,150 828	19.29	Bronze Disk
HC 1 0+00	22	322 089	2,151 427	14.26	1½" plugged pipe
HC 2 0+00	23	321 820	2,151 320	14.79	1½" open end pipe
HC 3 0+00	24	321 550	2,151 215	12.98	1½" open end pipe
HC 4 0+00	25	321 263	2,151 152	15.51	1½" capped pipe
HC 5 0+00	26	320 994	2,151 031	17.42	1½" capped pipe
HC 6 0+00	27	320 710	2,150 953	12.54	1½" capped pipe
HC 7 0+00	28	320 459	2,150 821	13.98*	1½" open end pipe
HC 8 0+00	29	320 188	2,150 790	15.04	1½" plugged pipe
HC 9 0+00	30	319 938	2,150 700	16.22	1½" plugged pipe

*note: this is elevation of P.K. nail in pole(T-1729); 4' above ground and 18' north of HC 7 0+00.

SKETCH

DA FORM 1959
1 OCT 84

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

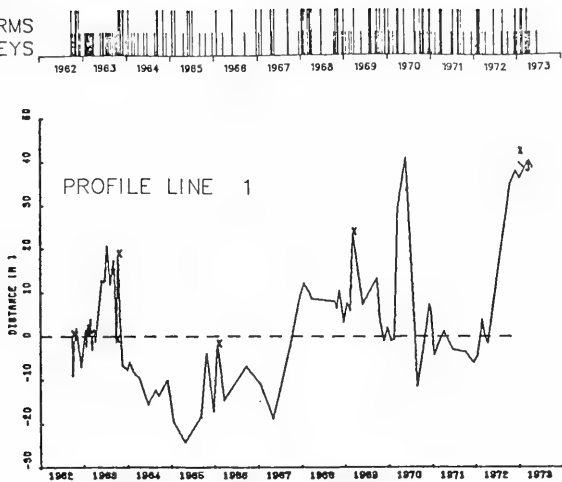
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

APPENDIX B

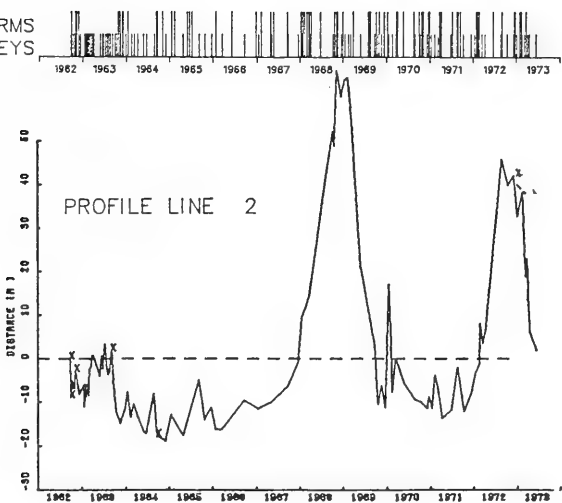
MSL SHORELINE POSITION CHANGE

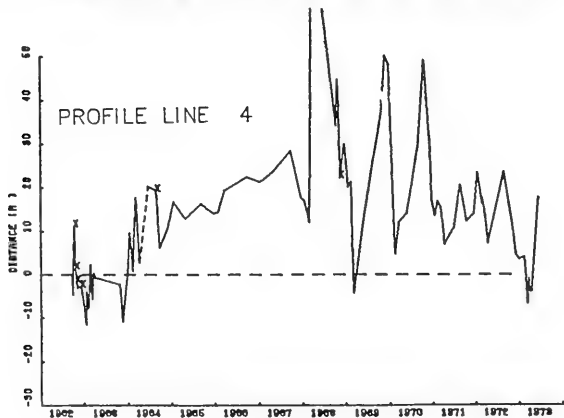
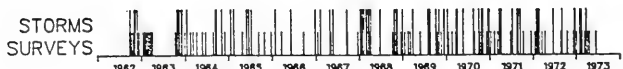
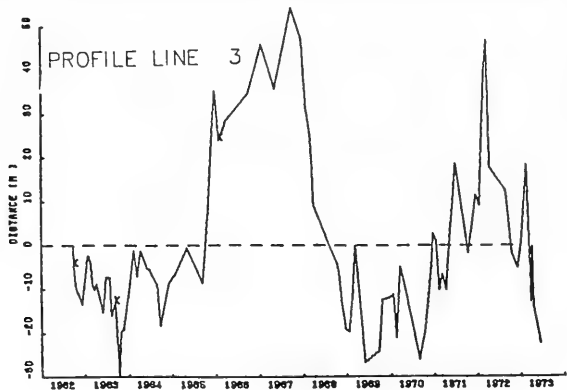
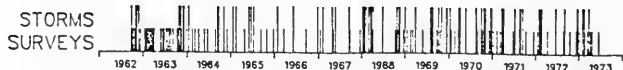
Distance measured from shoreline of first survey.
Symbol "X" indicates extrapolated value.

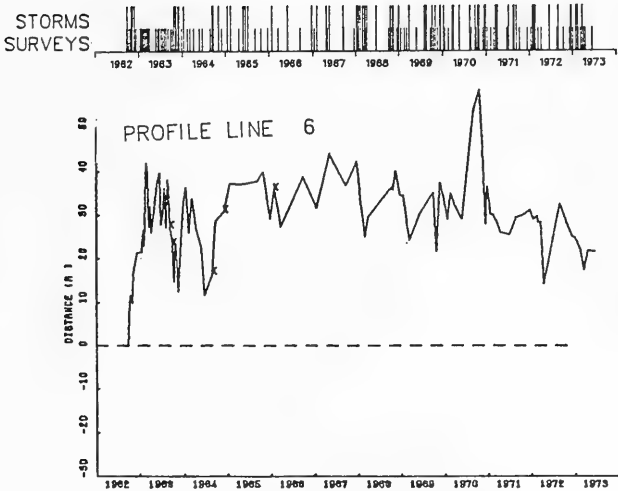
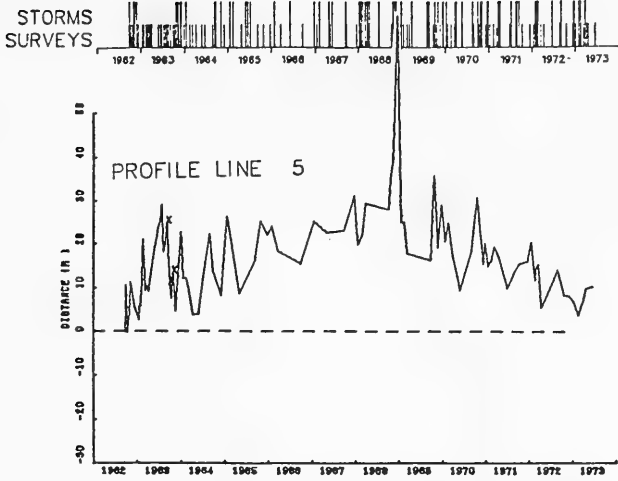
STORMS
SURVEYS

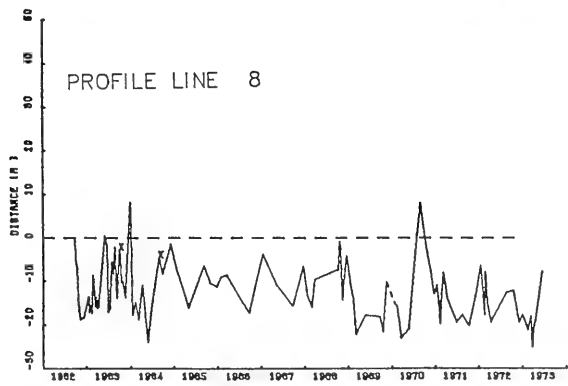
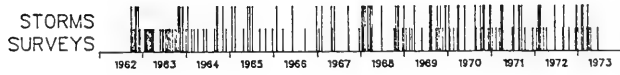
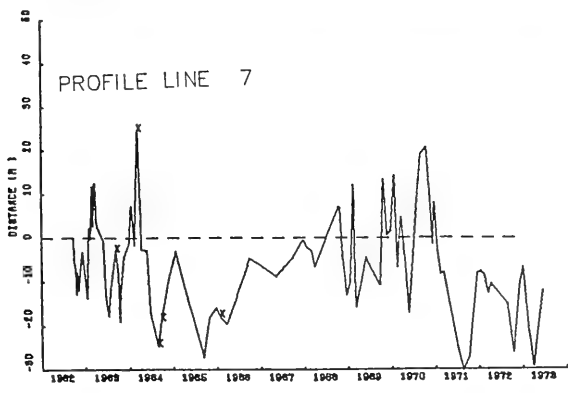
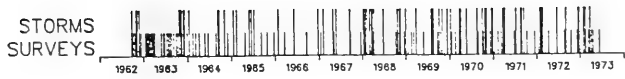


STORMS
SURVEYS

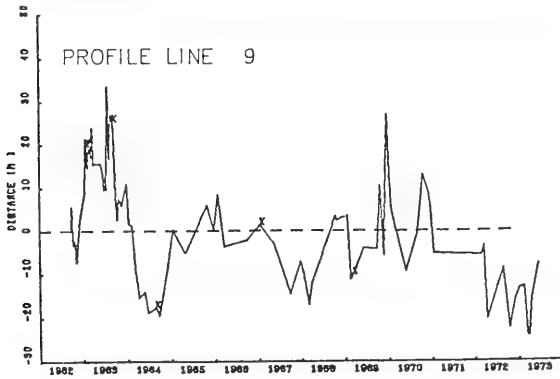
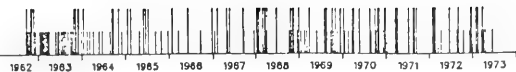




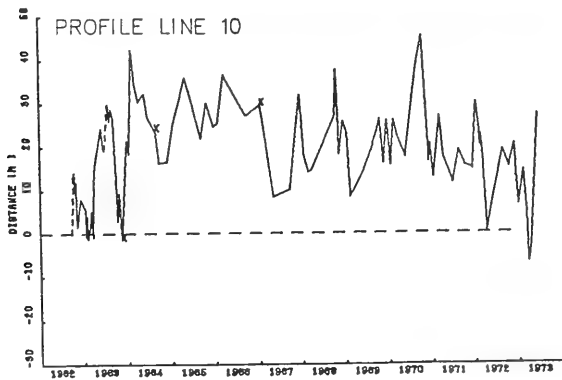
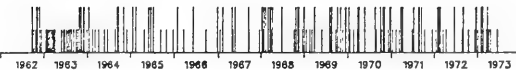


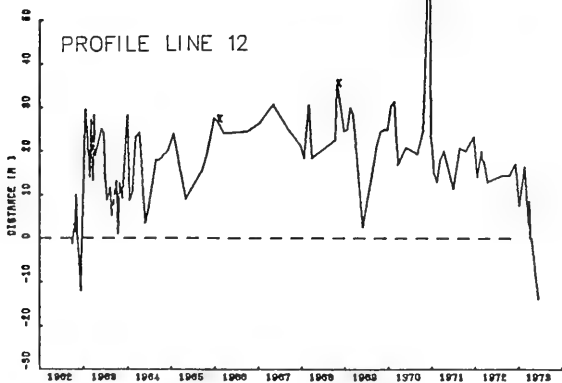
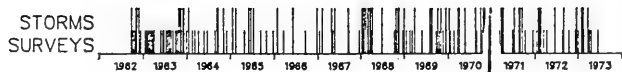
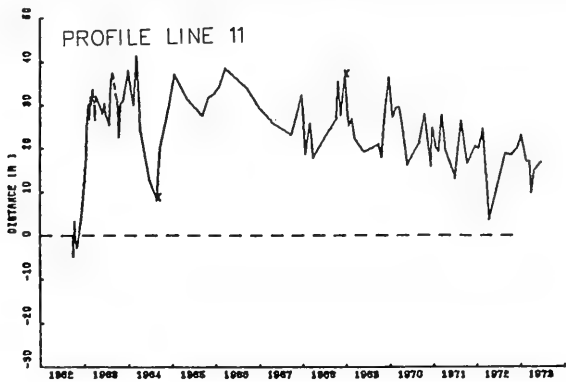
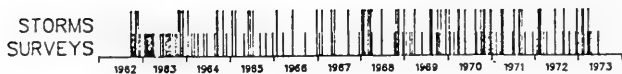


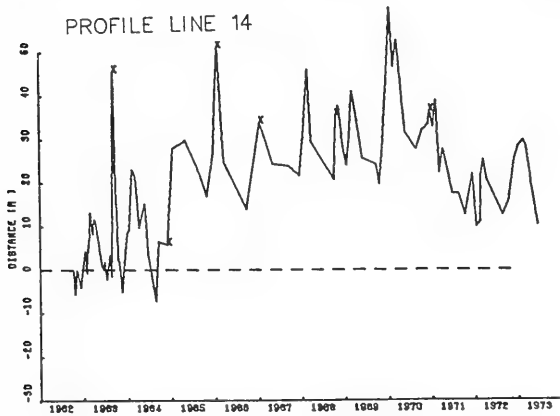
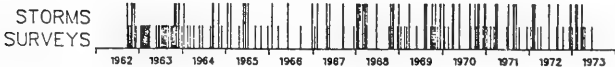
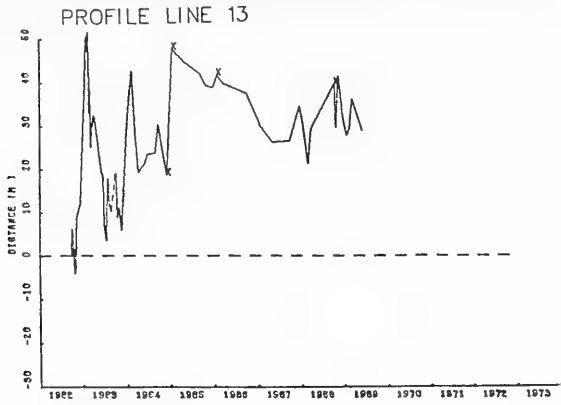
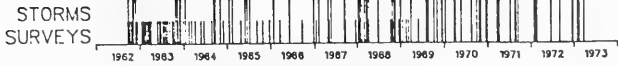
STORMS SURVEYS



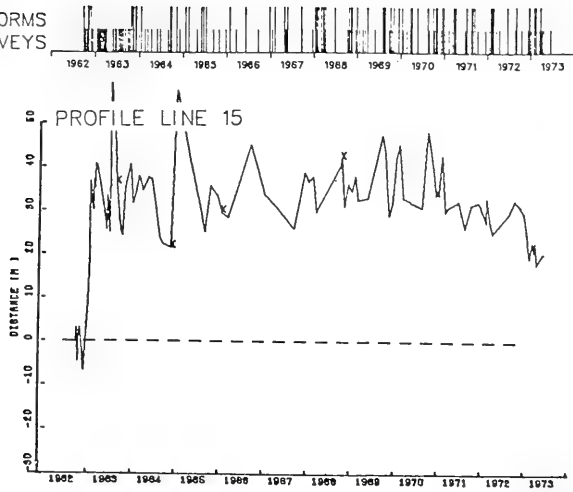
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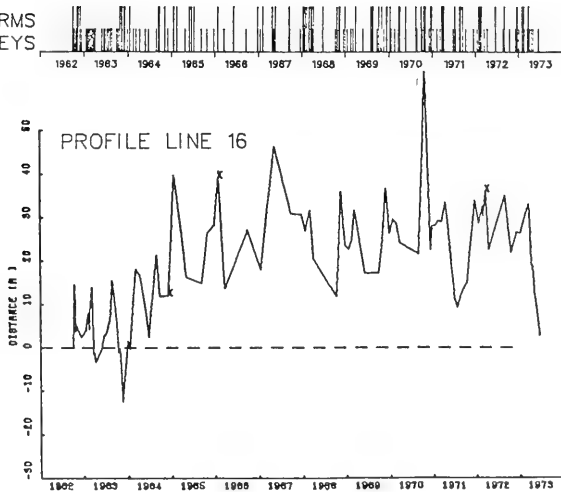




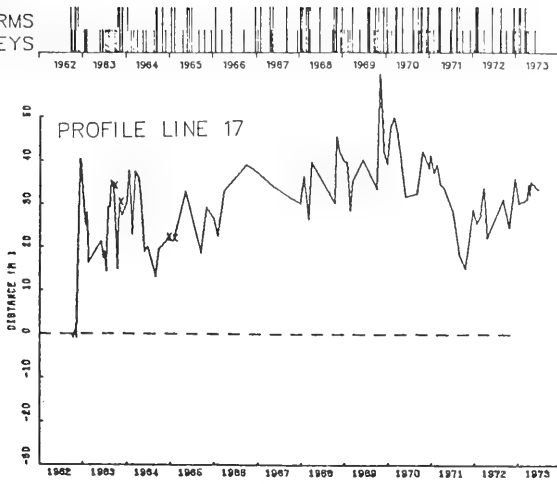
STORMS
SURVEYS



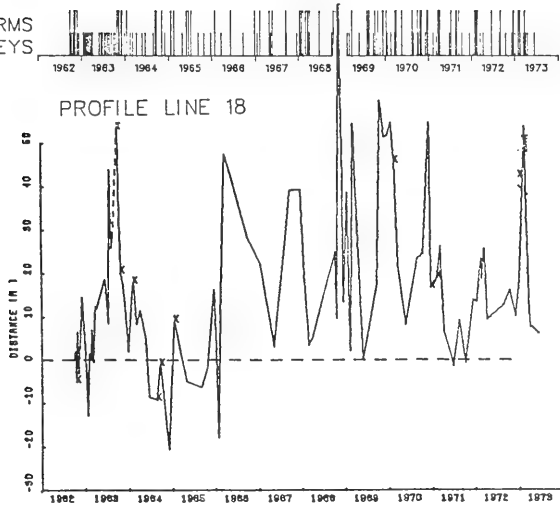
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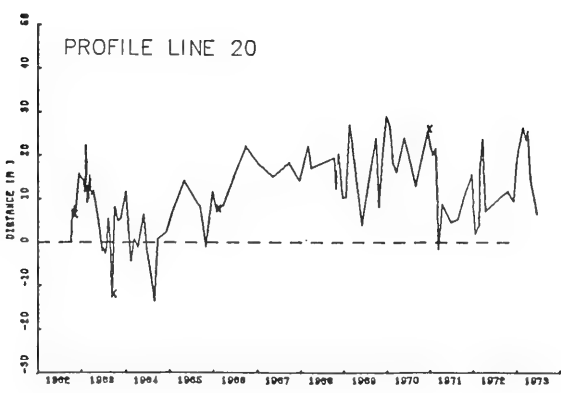
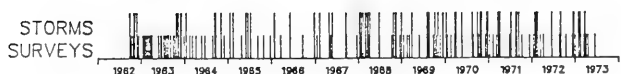
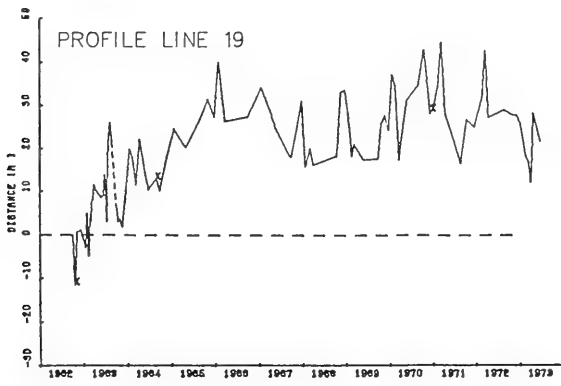
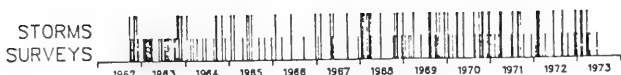


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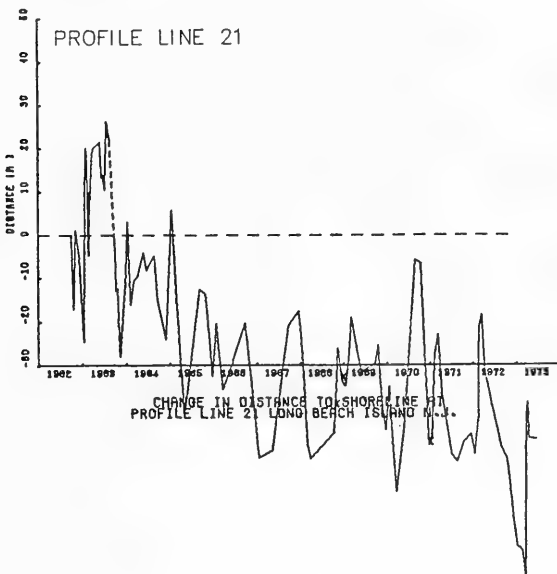
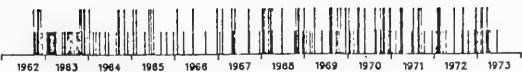


STORMS
SURVEYS

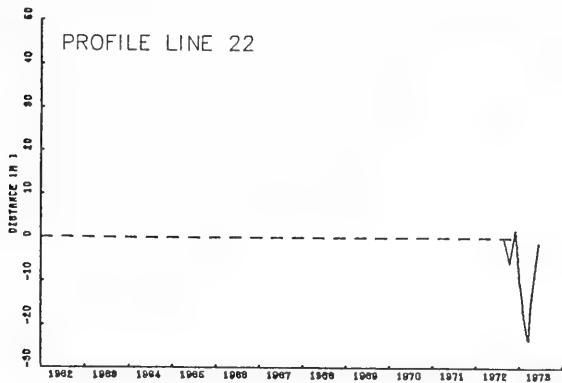
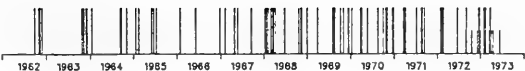


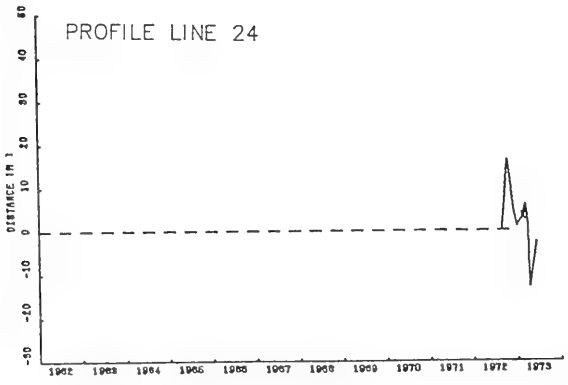
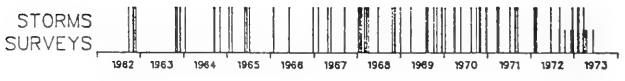
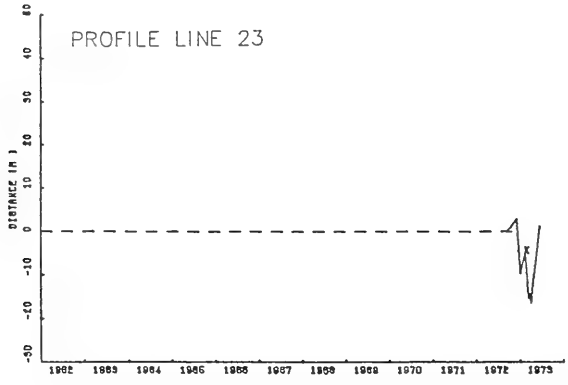
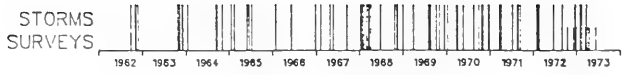


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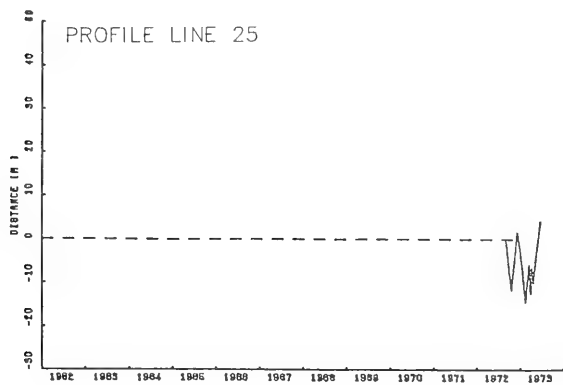
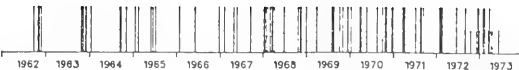


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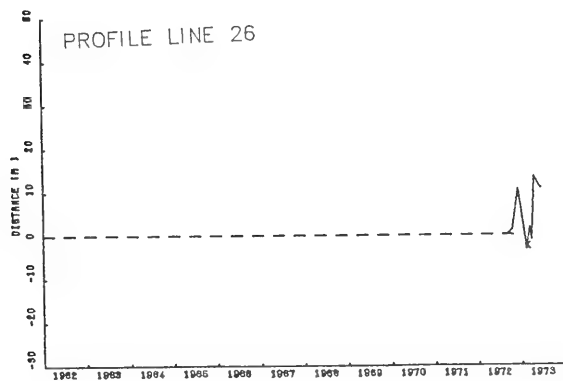
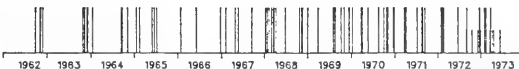


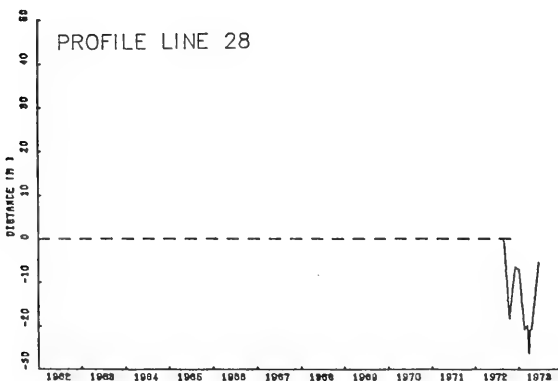
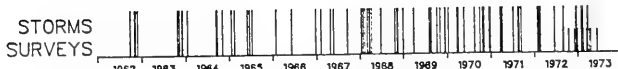
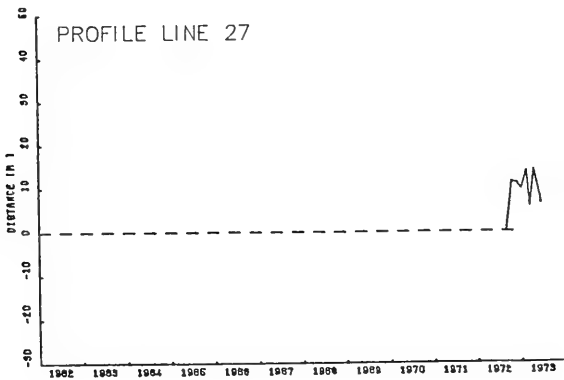
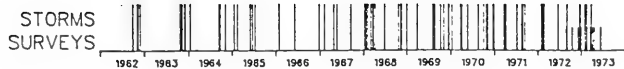


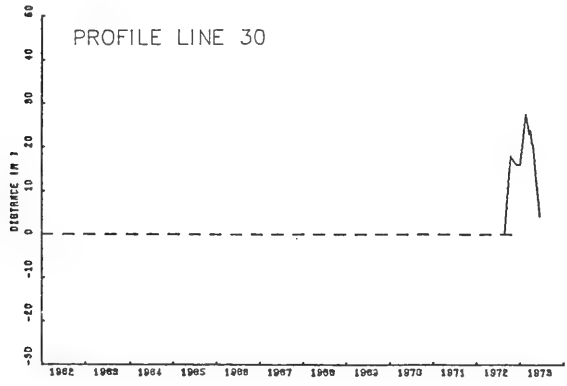
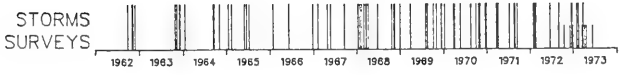
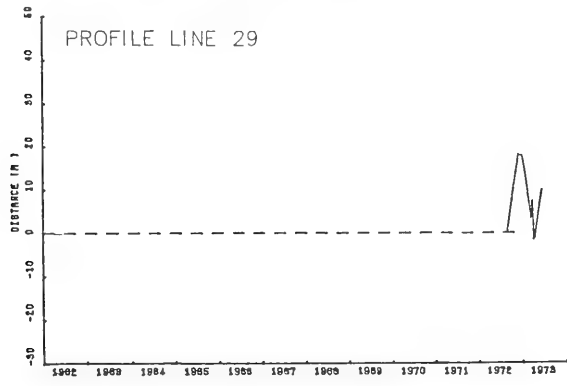
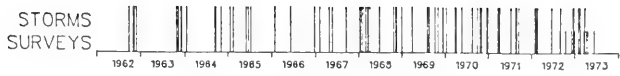
STORMS
SURVEYS



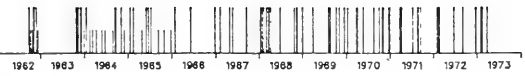
STORMS
SURVEYS



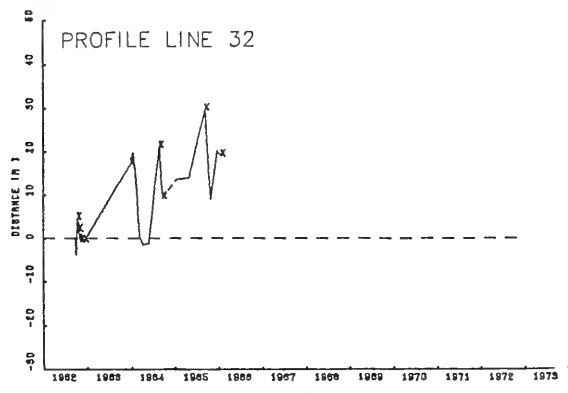




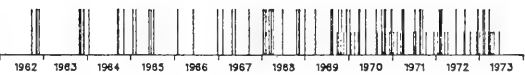
STORMS SURVEYS



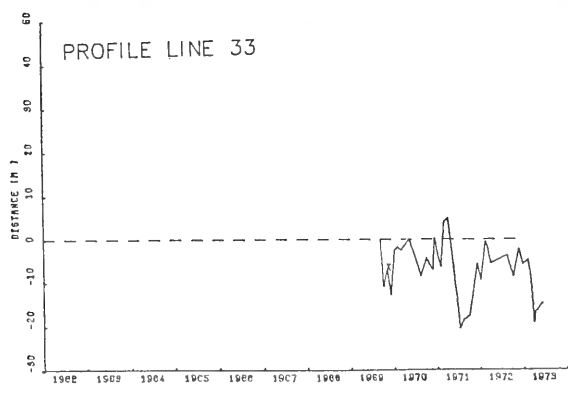
PROFILE LINE 32



STORMS SURVEYS



PROFILE LINE 33



APPENDIX C

PROFILE LINE SURVEY DATA

The survey data for Long Beach Island are tabulated by profile line number and survey date (in the form YYMMDD). Distances are in feet from the profile line bench mark; elevations are in feet above or below MSL.

LONG BEACH ISLAND N.J.
 DATUM IS CSL MEASUREMENT IS FT

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
620926	1	7:40	620928	2	7:50	621011	4	7:70	621023	5	7:50	621029	6	7:60
27:00	7:40	1:00	17:00	7:50	0:00	19:00	9:30	0:00	7:40	9:00	7:60	0:00	7:60	0:00
27:00	7:40	17:00	17:00	7:50	0:00	19:00	9:30	0:00	7:40	9:00	7:60	0:00	7:60	0:00
46:00	9:50	24:00	7:40	7:40	7:40	48:00	9:00	0:00	48:00	9:30	49:00	9:20	49:00	9:20
50:00	9:20	54:00	9:40	9:40	9:40	57:00	9:20	4:20	55:00	9:40	55:00	9:10	55:00	9:40
55:00	8:30	54:00	9:40	9:40	9:40	62:00	7:40	7:40	56:00	8:40	58:00	7:30	56:00	8:40
65:00	7:40	52:00	8:30	8:30	8:30	125:00	7:10	17:00	74:00	7:40	74:00	7:20	74:00	7:40
85:00	7:20	67:00	7:40	7:40	7:40	148:00	7:00	15:00	152:00	7:20	160:00	7:00	160:00	7:20
130:00	5:40	157:00	3:40	3:40	3:40	152:00	5:00	15:00	152:00	7:00	160:00	7:00	160:00	7:20
150:00	4:00	194:00	3:40	3:40	3:40	177:00	4:00	17:00	201:00	7:20	185:00	5:40	200:00	5:40
177:00	2:20	194:00	2:40	2:40	2:40	202:00	4:00	20:00	223:00	4:70	220:00	5:20	251:00	5:20
						223:00	4:40	22:00	223:00	4:70	220:00	5:20	251:00	5:20

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
650121	10	5:06	650128	11	7:50	650204	12	4:30	650212	13	8:30	650220	14	6:30
200:00	5:10	0:00	34:00	11:00	10:00	100:00	4:00	6:00	95:00	7:50	7:50	5:10	151:00	6:40
251:00	2:10	0:00	0:00	11:00	150:00	0:00	0:00	0:00	101:00	6:50	151:00	3:40	174:00	1:90
					226:00	0:00	0:00	0:00	151:00	4:00	145:00	1:40	201:00	1:00
					56:00	11:50	251:00	1:70	179:00	2:50	202:00	1:00	225:00	2:10
					66:00	11:10	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					71:00	8:30	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					102:00	6:50	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					123:00	4:60	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					151:00	3:20	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					176:00	2:40	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					220:00	2:70	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10
					251:00	1:20	251:00	1:40	201:00	4:40	223:00	0:60	251:00	2:10

LONG BEACH ISLAND N.W.J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE 1

DATE	630319	DATE	630326	DATE	630404	DATE	630528	DATE	630613	DATE	630625	DATE	630711	DATE	630723
SRVY	1A	SRVY	1Q	SRVY	2Q	SRVY	21	SRVY	22	SRVY	23	SRVY	24	SRVY	25
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
0+00	7+50	71+00	6+00	72+00	6+50	6+00	7+60	150+00	5+60	75+00	6+30	175+00	5+90	75+00	6+00
35+00	7+50	101+00	6+50	126+00	5+30	30+00	7+60	181+00	5+30	100+00	6+00	202+00	4+80	100+00	6+00
41+00	11+00	101+00	5+00	101+00	5+00	45+00	10+30	201+00	4+20	150+00	5+70	225+00	-1+20	120+00	5+80
49+00	9+80	175+00	1+50	150+00	3+50	50+00	10+00	250+00	0+00	275+00	3+20	301+00	-1+20	200+00	5+80
76+00	1+30	216+00	0+00	22+00	-1+60	71+00	12+50	279+00	+4+50	275+00	0+00	301+00	-1+20	200+00	5+80
73+00	6+50	275+00	-1+30	251+00	-1+20	101+00	6+20	279+00	+4+50	252+00	0+00	275+00	-1+20	225+00	1+00
132+00	5+00	132+00	5+00	251+00	-1+20	128+00	5+70	279+00	+4+50	275+00	-1+10	275+00	-1+20	275+00	-1+50
176+00	2+30	176+00	2+30	251+00	-1+20	181+00	5+40	279+00	+4+50	275+00	-1+10	275+00	-1+20	301+00	-1+00
202+00	+20	202+00	+20	251+00	-1+20	201+00	3+60	279+00	+4+50	275+00	-1+10	275+00	-1+20	301+00	-1+00
227+00	-1+20	227+00	-1+20	251+00	-1+20	227+00	2+40	279+00	+4+50	275+00	-1+10	275+00	-1+20	301+00	-1+00
251+00	-1+00	251+00	-1+00	251+00	-1+20	252+00	0+00	279+00	+4+50	275+00	-1+10	275+00	-1+20	301+00	-1+00
						302+00	-1+00	279+00	+4+50	275+00	-1+10	275+00	-1+20	301+00	-1+00

PROFILE 1

DATE	630906	DATE	630920	DATE	630926	DATE	631010	DATE	631025	DATE	631115	DATE	631227
SRVY	2b	SRVY	27	SRVY	2R	SRVY	30	SRVY	31	SRVY	32	SRVY	33
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
107+00	5+80	150+00	5+80	150+00	5+80	48+00	10+30	151+00	5+80	101+00	6+90	76+00	6+50
175+00	5+90	175+00	6+10	175+00	5+00	46+00	12+80	177+00	5+70	151+00	5+50	100+00	7+10
201+00	4+50	201+00	5+30	201+00	1+70	75+00	6+80	262+00	2+80	176+00	3+80	126+00	6+50
226+00	2+50	251+00	5+0	267+00	0+00	101+00	6+80	267+00	1+00	202+00	1+40	202+00	-1+40
289+00	0+00	289+00	0+00	301+00	-1+30	126+00	6+00	253+00	4+00	252+00	-1+30	202+00	-1+40
277+00	-2+10	277+00	-2+10	301+00	-1+30	151+00	4+80	253+00	4+00	252+00	-1+30	202+00	-1+40
						177+00	2+60	253+00	4+00	252+00	-1+30	202+00	-1+40
						202+00	2+60	253+00	4+00	252+00	-1+30	202+00	-1+40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	
640115	30	1200	640310	36	1200	640407	37	1200	640525	38	1200	640623	39	1200	640624	40	1200	
-117.00	7.50	41.00	13.50	21.00	19.00	8.00	21.00	7.90	7.90	0.00	7.90	21.00	8.00	19.00	19.00	8.00	19.00	8.00
-126.00	7.20	65.00	9.70	54.00	12.00	12.00	51.00	12.00	12.00	27.00	12.00	51.00	12.00	39.00	39.00	12.00	39.00	12.00
-131.00	7.50	157.00	1.80	67.00	18.20	17.70	70.00	17.50	17.50	41.00	17.50	72.00	17.50	51.00	51.00	17.50	51.00	17.50
20.00	7.80	202.00	-1.80	101.00	5.60	102.00	5.40	101.00	5.40	53.00	12.60	117.00	6.10	61.00	61.00	6.10	61.00	6.10
01.00	13.50	223.00	-1.80	152.00	2.00	152.00	2.10	127.00	4.40	68.00	8.50	124.00	4.40	122.00	122.00	4.40	122.00	4.40
62.00	8.30			183.00	-1.10	180.00	-2.10	152.00	1.70	126.00	3.60	177.00	-2.70	155.00	155.00	-2.70	155.00	-2.70
101.00	5.30			202.00	-1.20	202.00	-2.00	202.00	-2.30	177.00	-2.00			172.00	172.00		172.00	
152.00	2.50			220.00	-2.00	220.00	-3.10	202.00	-2.30									
177.00	4.40																	
202.00	8.50																	
224.00	8.20																	

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	
641231	42	1200	650119	43	1200	650227	44	1200	650307	45	1200	651027	46	1200	651222	47	1200	
19.00	8.50	51.00	11.70	46.00	12.90	47.00	12.60	47.00	47.00	61.00	12.00	124.00	61.00	124.00	44.00	12.10	12.10	12.10
38.00	11.90	53.00	10.50	52.00	12.10	60.00	8.70	61.00	8.60	63.00	8.70	205.00	8.70	205.00	7.80	7.80	7.80	7.80
45.00	12.60	57.00	7.10	66.00	7.10	75.00	6.60	101.00	6.00	78.00	8.00	78.00	8.00	78.00	8.00	8.00	8.00	8.00
60.00	9.00	78.00	4.70	101.00	3.60	91.00	7.20	202.00	-4.30	101.00	4.70	101.00	4.70	101.00	4.70	101.00	4.70	101.00
83.00	8.00	126.00	1.00	126.00	4.60	101.00	5.70	218.00	-4.40	127.00	2.60	127.00	2.60	127.00	2.60	127.00	2.60	127.00
101.00	6.80	151.00	-2.00	151.00	-2.60	151.00	-2.20			152.00	4.10	152.00	4.10	152.00	4.10	152.00	4.10	152.00
126.00	3.40	172.00	-1.90	177.00	-1.70	166.00	-1.20			177.00	-1.50	177.00	-1.50	177.00	-1.50	177.00	-1.50	177.00
152.00	1.00	192.00	-2.20							202.00	-3.00	202.00	-3.00	202.00	-3.00	202.00	-3.00	202.00
177.00	4.40																	
202.00	8.20																	

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE 670505			DATE 670920			DATE 671219			DATE 680117			DATE 680227			DATE 680327		
SVY	51	52	SVY	51	52	SVY	54	55	SVY	56	SVY	65	SVY	5A	SVY	5A	
TIME	1200	1200	TIME	1200	1200	TIME	1200	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	
18.00	24.00	22.00	26.00	7.60	0.00	7.60	0.00	7.60	0.00	7.60	11.00	7.70	0.00	4.00	7.70	7.70	
19.00	36.00	03.00	48.00	9.60	20.00	13.20	37.00	37.00	37.00	40.00	35.00	40.00	40.00	40.00	40.00	40.00	
47.00	50.00	11.00	54.00	13.60	40.00	13.20	57.00	57.00	60.00	60.00	55.00	13.30	60.00	60.00	60.00	60.00	
59.00	48.00	53.00	100.00	6.00	05.00	12.40	60.00	60.00	60.00	60.00	60.00	14.50	51.00	49.00	51.00	49.00	
75.00	78.00	50.00	125.00	5.90	55.00	10.00	151.00	151.00	151.00	151.00	60.00	19.20	62.00	49.00	62.00	49.00	
104.00	74.00	75.00	150.00	5.00	75.00	8.00	174.00	174.00	174.00	174.00	75.00	8.30	100.00	71.20	100.00	71.20	
130.00	54.00	101.00	3.20	174.00	1.40	125.00	7.00	245.00	0.00	100.00	7.00	126.00	156.00	61.60	156.00	61.60	
152.00	3.00	175.00	0.00	224.00	2.00	150.00	5.10	275.00	-20.10	174.00	5.20	181.00	181.00	5.00	181.00	5.00	
201.00	-1.50	201.00	-3.00	224.00	-1.90	201.00	4.20	151.00	2.50	174.00	2.50	275.00	275.00	-3.00	275.00	-3.00	
222.00	-2.30	201.00	-3.00	226.00	-1.90	226.00	1.50	250.00	1.50	250.00	1.50	250.00	250.00	1.50	250.00	1.50	
		276.00	-2.60	276.00	-2.60	276.00	-2.60	250.00	-1.30	250.00	-1.30	250.00	250.00	-1.30	250.00	-1.30	

PROFILE 1

DATE 681109			DATE 681219			DATE 690115			DATE 690213			DATE 690309			DATE 690520		
SVY	59	60	SVY	62	63	SVY	64	63	SVY	60	SVY	65	SVY	66	SVY	66	
TIME	1200	1200	TIME	1200	1200	TIME	1200	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	
22.00	41.00	20.00	7.80	0.00	7.70	25.00	8.10	25.00	25.00	48.00	48.00	14.10	25.00	25.00	7.50	7.50	
40.00	12.90	40.00	14.90	25.00	7.90	05.00	10.60	05.00	15.10	50.00	14.20	43.00	43.00	13.40	43.00	13.40	
50.00	12.60	50.00	13.50	42.00	13.70	52.00	13.90	52.00	13.50	70.00	9.20	52.00	52.00	13.10	52.00	13.10	
70.00	9.20	45.00	30.60	52.00	13.40	68.00	8.90	60.00	9.90	100.00	7.50	100.00	100.00	9.10	100.00	9.10	
100.00	7.50	100.00	0.00	105.00	9.00	100.00	6.80	175.00	6.60	150.00	4.20	150.00	150.00	6.60	150.00	6.60	
150.00	7.20	100.00	4.00	100.00	6.20	175.00	3.80	150.00	7.00	200.00	2.40	125.00	125.00	5.00	125.00	5.00	
175.00	5.70	156.00	7.00	175.00	6.20	200.00	2.20	200.00	5.00	200.00	1.10	174.00	174.00	5.00	174.00	5.00	
225.00	3.00	164.00	7.80	240.00	-1.60	225.00	-1.00	176.00	3.80	200.00	1.10	174.00	200.00	3.80	200.00	3.80	
225.00	1.00	172.00	6.00	235.00	-4.40	250.00	-1.00	200.00	1.40	225.00	1.40	250.00	250.00	1.40	250.00	1.40	
250.00	-1.10	200.00	2.90	250.00	-1.30	275.00	-2.00	250.00	1.40	250.00	1.40	250.00	250.00	1.40	250.00	1.40	
260.00	1.00	225.00	-4.50	300.00	-3.20	300.00	-3.20	300.00	-3.20	275.00	-3.20	275.00	275.00	-3.20	275.00	-3.20	

LONG BEACH ISLAND "A.J."
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE 690224	DATE 691120	DATE 691118	DATE 691218	DATE 700120	DATE 700218	DATE 700318	DATE 700521
SVY 67	SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	25.00	17.00	14.00	8.10	13.00	15.00	5.00
17.00	45.00	19.30	43.00	14.00	45.00	10.50	21.00
7.00	54.00	13.10	52.00	13.00	45.00	13.70	45.00
50.00	62.00	9.40	69.00	9.20	50.00	14.30	50.00
79.00	62.00	9.30	81.00	8.50	71.00	9.70	69.00
100.00	7.10	91.00	100.00	7.50	100.00	6.50	110.00
115.00	6.60	118.00	6.80	128.00	100.00	6.50	100.00
155.00	6.60	118.00	6.80	128.00	150.00	3.50	150.00
175.00	7.20	107.00	7.60	150.00	4.20	200.00	4.20
185.00	7.50	175.00	7.90	175.00	4.00	200.00	4.80
200.00	8.10	200.00	8.50	200.00	4.00	200.00	4.80
205.00	8.10	200.00	8.50	200.00	4.00	200.00	4.80
225.00	8.10	200.00	8.50	200.00	4.00	200.00	4.80
235.00	8.10	200.00	8.50	200.00	4.00	200.00	4.80
245.00	8.10	200.00	8.50	200.00	4.00	200.00	4.80
275.00	275.00	275.00	275.00	275.00	275.00	275.00	275.00
300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00

PROFILE 1

DATE 700426	DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710204	DATE 710308	DATE 710628
SVY 75	SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	0.00	7.90	0.00	0.00	8.10	20.00	0.00
1.00	7.00	17.00	25.00	17.00	17.00	40.00	7.00
45.00	13.50	14.20	14.00	13.30	13.30	40.00	20.00
53.00	13.00	14.00	47.00	44.00	55.00	50.00	20.00
75.00	6.40	9.40	50.00	48.10	66.00	53.00	14.00
100.00	6.40	100.00	67.00	63.30	75.00	60.00	66.00
100.00	6.20	100.00	67.00	63.30	75.00	60.00	66.00
134.00	7.00	125.00	110.00	100.00	100.00	100.00	100.00
139.00	5.70	150.00	145.00	125.00	125.00	125.00	150.00
150.00	5.70	175.00	150.00	170.00	150.00	150.00	150.00
175.00	6.00	200.00	175.00	175.00	175.00	175.00	200.00
200.00	6.00	225.00	200.00	200.00	200.00	200.00	200.00
205.00	6.00	225.00	200.00	200.00	200.00	200.00	200.00
225.00	6.00	225.00	200.00	200.00	200.00	200.00	200.00
250.00	6.00	225.00	200.00	200.00	200.00	200.00	200.00
250.00	6.00	225.00	200.00	200.00	200.00	200.00	200.00

LONG BEACH ISLAND N.J.
DATUM TO WSL MEASUREMENT IS FT

PROFILE 1

DATE 710620	DATE 710617	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720225	DATE 720515
SVY 43	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49	SVY 50	SVY 51
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	0.00	7.90	15.00	15.00	16.00	25.00	26.00
17.00	13.00	13.60	12.50	12.50	30.00	47.00	46.00
29.00	12.60	08.00	09.00	12.50	42.00	12.00	49.00
36.00	12.60	08.00	08.00	12.50	04.00	14.00	52.00
43.00	14.30	100.00	63.00	62.00	53.00	12.60	62.00
49.00	12.50	124.00	77.00	67.00	63.00	7.60	62.00
57.00	14.50	156.00	106.00	102.00	63.00	7.60	62.00
61.00	14.50	156.00	106.00	102.00	71.00	3.50	100.00
91.00	16.90	172.00	172.00	150.00	150.00	26.00	172.00
100.00	16.40	200.00	200.00	175.00	200.00	31.80	200.00
125.00	16.40	225.00	225.00	200.00	250.00	25.00	225.00
150.00	16.30	250.00	250.00	225.00	250.00	25.00	225.00
200.00	0.00		245.00	245.00			
250.00	2.10						

PROFILE 1

DATE 720511	DATE 720523	DATE 721017	DATE 721205	DATE 730103	DATE 730213	DATE 730513	DATE 730524
SVY 52	SVY 53	SVY 54	SVY 55	SVY 56	SVY 57	SVY 58	SVY 59
TIME 1200	TIME 1000	TIME 800	TIME 800	TIME 900	TIME 900	TIME 1100	TIME 1000
25.00	12.00	20.00	28.00	0.00	25.00	25.00	20.00
39.00	12.00	08.00	43.00	7.00	45.00	40.00	49.00
47.00	13.80	10.80	43.00	7.00	45.00	40.00	49.00
52.00	14.00	50.00	57.00	15.00	50.00	35.50	52.00
65.00	12.50	10.00	87.00	15.30	66.00	65.00	100.00
72.00	9.00	10.00	100.00	12.90	71.00	66.00	150.00
100.00	6.50	150.00	150.00	7.80	100.00	100.00	200.00
150.00	9.00	200.00	200.00	7.80	150.00	150.00	250.00
200.00	8.30	244.00	250.00	7.20	191.00	200.00	300.00
250.00	8.30	284.00	300.00	6.90	200.00	200.00	350.00
300.00	8.10	325.00	325.00	5.90	250.00	250.00	400.00
310.00	8.10	325.00	325.00	5.90	250.00	250.00	400.00
310.00	8.10	325.00	325.00	5.90	250.00	250.00	400.00
325.00	0.00		350.00	2.30	350.00	350.00	450.00
397.00	0.00						

LONG BEACH ISLAND 'A' J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
7/20/26	1000	7/20/26	1000	7/20/26	1000	7/20/26	1000	7/20/26	1000	7/20/26	1000	7/20/26	1000	7/20/26	1000
25.00	7.40	25.00	7.90	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70
04.00	17.50	07.00	16.20	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00
03.00	15.00	05.00	17.30	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70
100.00	7.50	100.00	10.00	70.00	10.00	70.00	10.00	70.00	10.00	70.00	10.00	70.00	10.00	70.00	10.00
150.00	6.70	150.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60
200.00	9.40	200.00	9.40	240.00	8.60	240.00	8.60	240.00	8.60	240.00	8.60	240.00	8.60	240.00	8.60
300.00	2.50	300.00	4.50	300.00	6.10	300.00	6.10	300.00	6.10	300.00	6.10	300.00	6.10	300.00	6.10
375.00	3.40	350.00	1.60	350.00	2.10	375.00	1.10	375.00	1.10	375.00	1.10	375.00	1.10	375.00	1.10

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
7/20/26	1200	7/20/26	1200	7/20/26	1200	7/20/26	1200	7/20/26	1200	7/20/26	1200	7/20/26	1200	7/20/26	1200
-11.00	10.50	27.00	13.20	20.00	12.60	18.00	12.60	17.00	12.60	22.00	12.60	22.00	12.60	22.00	12.60
37.00	15.20	30.00	10.80	38.00	9.60	39.00	9.60	36.00	10.20	37.00	9.80	35.00	12.70	35.00	12.70
24.00	8.50	38.00	9.60	59.00	8.90	61.00	8.90	70.00	8.70	72.00	8.10	56.00	9.10	56.00	9.10
57.00	7.30	62.00	8.90	68.00	7.60	71.00	7.50	110.00	5.70	106.00	6.10	106.00	6.10	106.00	6.10
90.00	7.20	68.00	8.60	102.00	7.50	103.00	7.60	108.00	5.20	105.00	3.80	105.00	3.80	105.00	3.80
130.00	7.50	97.00	7.20	137.00	8.10	135.00	8.10	148.00	2.90	142.00	1.50	142.00	1.50	142.00	1.50
180.00	7.20	135.00	7.20	158.00	5.40	166.00	4.50	165.00	4.50	193.00	1.50	193.00	1.50	193.00	1.50
180.00	5.70	157.00	4.60	184.00	2.20	189.00	2.00	203.00	0.00	203.00	0.00	203.00	0.00	203.00	0.00
200.00	2.00	190.00	0.70	227.00	0.00	218.00	-1.90	200.00	-3.20	200.00	-3.20	200.00	-3.20	200.00	-3.20

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/30/21	1200	6/30/21	1200	6/30/21	1200	6/30/21	1200	6/30/21	1200	6/30/21	1200	6/30/21	1200	6/30/21	1200
100.00	7.40	25.00	11.50	100.00	7.40	25.00	11.50	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00
200.00	8.90	50.00	9.50	151.00	3.40	38.00	9.60	121.00	5.90	151.00	4.60	100.00	6.90	124.00	6.20
		75.00	9.00	176.00	1.00	79.00	8.90	151.00	3.80	201.00	4.00	150.00	5.40	175.00	4.50
		130.00	4.00	190.00	-1.80	101.00	6.90	180.00	1.80	227.00	-1.60	175.00	3.70	200.00	3.50
		150.00	2.80	126.00	6.50	201.00	-1.60	221.00	-1.60	221.00	-1.60	200.00	4.90	225.00	-1.60
		150.00	2.80	251.00	3.50	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60
		226.00	-1.50	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60

LONG BEACH ISLAND No. 1
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE 630119 SVY 19 TIME 1200	DATE 630126 SVY 10 TIME 1200	DATE 630404 SVY 20 TIME 1200	DATE 630528 SVY 21 TIME 1200	DATE 630613 SVY 22 TIME 1200	DATE 630626 SVY 23 TIME 1200	DATE 630711 SVY 24 TIME 1200	DATE 630727 SVY 25 TIME 1200
176.00	100.00	100.00	0.00	50.00	50.00	119.00	100.00
225.00	126.00	126.00	25.00	74.00	74.00	151.00	126.00
251.00	151.00	150.00	51.00	104.00	100.00	201.00	151.00
	176.00	176.00	50.00	131.00	126.00	226.00	175.00
	201.00	201.00	48.00	161.00	162.00	251.00	201.00
	226.00	227.00	48.00	185.00	176.00		227.00
	251.00	251.00	167.00	6.90	201.00		251.00
			175.00	3.00	224.00		
			226.00	1.20	251.00		

PROFILE 2

DATE 630806 SVY 26 TIME 1200	DATE 630820 SVY 27 TIME 1200	DATE 630906 SVY 28 TIME 1200	DATE 630926 SVY 29 TIME 1200	DATE 631010 SVY 30 TIME 1200	DATE 631026 SVY 31 TIME 1200	DATE 631115 SVY 32 TIME 1200	DATE 631227 SVY 33 TIME 1200
75.00	8.50	100.00	-1.00	100.00	99.00	76.00	24.00
101.00	8.60	7.10	20.00	126.00	75.00	126.00	35.00
151.00	8.20	126.00	24.00	126.00	9.00	152.00	52.00
175.00	1.60	175.00	24.00	175.00	162.00	176.00	131.00
201.00	1.80	176.00	3.40	201.00	150.00	201.00	127.00
201.00	1.80	226.00	7.60	201.00	202.00		197.00
251.00	-1.50	201.00	151.00	3.40	202.00		197.00
251.00	-2.20	251.00	202.00	-4.50			202.00
							202.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	
SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	
-103.00	7.50	51.00	9.60	1.00	11.60	25.00	12.10	10.00	12.10	24.00	12.20	00.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
-276.00	7.50	174.00	5.00	07.00	17.00	46.00	12.60	65.00	11.30	50.00	15.60	51.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
-252.00	7.50	120.00	3.70	62.00	8.00	74.00	7.60	64.00	8.00	60.00	6.50	71.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
-152.00	7.50	181.00	0.00	75.00	7.10	101.00	6.20	76.00	7.50	101.00	6.70	101.00	6.70	101.00	6.70	101.00	6.70	101.00	6.70	101.00
-137.00	7.50	203.00	-1.20	101.00	5.70	127.00	0.70	102.00	6.00	126.00	5.00	132.00	7.50	132.00	7.50	132.00	7.50	132.00	7.50	132.00
-50.00	7.50	228.00	-1.80	126.00	5.10	152.00	2.00	129.00	4.30	151.00	1.90	152.00	3.00	152.00	3.00	152.00	3.00	152.00	3.00	152.00
0.00	11.00	0.00	0.00	202.00	-0.00	227.00	-1.40	152.00	2.00	177.00	-0.90	177.00	2.00	177.00	2.00	177.00	2.00	177.00	2.00	177.00
29.00	12.50	24.00	12.50	223.00	-1.70	223.00	-1.70	202.00	-2.70	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00
48.00	11.20	48.00	11.20	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00
51.00	9.60	51.00	9.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00	11.60	08.00
76.00	6.60	76.00	6.60	101.00	6.20	101.00	6.20	101.00	6.20	101.00	6.20	101.00	6.20	101.00	6.20	101.00	6.20	101.00	6.20	101.00
101.00	4.70	101.00	4.70	126.00	5.10	126.00	5.10	126.00	5.10	126.00	5.10	126.00	5.10	126.00	5.10	126.00	5.10	126.00	5.10	126.00
128.00	3.70	128.00	3.70	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00	-0.00	202.00
202.00	1.00	202.00	1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00	-1.00	226.00
253.00	-2.00	253.00	-2.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00	11.00	0.00

PROFILE 2

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200	SVV 1200
25.00	12.20	25.00	12.20	08.00	11.20	05.00	13.20	05.00	13.10	05.00	13.10	05.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
48.00	12.20	48.00	12.20	09.00	9.60	57.00	9.60	57.00	9.60	57.00	9.60	57.00	9.60	57.00	9.60	57.00	9.60	57.00	9.60	57.00
65.00	12.90	65.00	12.90	09.00	7.00	74.00	7.00	74.00	7.00	74.00	7.00	74.00	7.00	74.00	7.00	74.00	7.00	74.00	7.00	74.00
51.00	10.80	51.00	10.80	151.00	1.30	101.00	1.30	101.00	1.30	101.00	1.30	101.00	1.30	101.00	1.30	101.00	1.30	101.00	1.30	101.00
76.00	7.70	76.00	7.70	178.00	-0.40	126.00	7.10	179.00	0.00	126.00	4.50	101.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50	101.00
101.00	5.60	101.00	5.60	202.00	-2.10	108.00	7.00	187.00	-1.60	152.00	-2.30	126.00	3.00	126.00	3.00	126.00	3.00	126.00	3.00	126.00
151.00	4.80	151.00	4.80	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00	-2.40	202.00
202.00	-2.60	202.00	-2.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00	-1.60	222.00

LONG BEACH ISLAND R+J
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE 660922	DATE 670116	DATE 670505	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327
SVY 50	SVY 51	SVY 52	SVY 54	SVY 55	SVY 56	SVY 57	SVY 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-1.00 12.10	21.00 12.30	6.00 12.40	25.00 12.70	-1.00 12.10	35.00 12.40	0.00 12.00	0.00 12.10
20.00 12.20	76.00 7.70	39.00 11.90	39.00 12.30	91.00 12.60	52.00 12.40	05.00 12.30	50.00 12.00
48.00 8.70	100.00 6.00	40.00 11.20	76.00 8.40	52.00 12.10	9.00 9.60	60.00 12.00	42.00 13.50
76.00 8.20	125.00 5.40	50.00 10.20	101.00 6.80	65.00 9.70	120.00 4.00	76.00 8.00	65.00 12.40
98.00 8.40	201.00 3.20	75.00 8.10	126.00 5.60	101.00 7.30	151.00 4.00	99.00 6.90	80.00 9.80
125.00 7.50	251.00 -1.20	100.00 6.60	155.00 6.20	138.00 4.80	172.00 2.60	120.00 6.20	101.00 7.10
131.00 1.00	227.00 -3.20	128.00 3.90	208.00 3.30	152.00 2.00	250.00 4.00	150.00 5.00	150.00 5.50
228.00 -2.10	1.00 1.00	134.00 3.50	278.00 1.90	229.00 -1.10	250.00 -1.90	150.00 5.00	200.00 5.00
		201.00 -1.80	251.00 -1.80	276.00 -2.40	204.00 -2.80	250.00 -1.70	250.00 -1.50
		225.00 -2.70				209.00 -1.50	125.00 -3.10
		201.00 -1.40					

PROFILE 2

DATE 681004	DATE 681023	DATE 681113	DATE 681218	DATE 681218	DATE 690213	DATE 690324	DATE 690524
SVY 59	SVY 60	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00 12.00	35.00 13.10	15.90 15.90	35.00 10.50	16.10 16.10	38.00 10.50	00.00 17.50	23.00 12.50
35.00 13.70	60.00 12.50	15.00 05.00	05.00 16.10	51.00 15.70	45.00 17.50	00.00 16.20	60.00 16.20
60.00 12.40	75.00 9.60	12.90 12.90	13.40 13.40	60.00 10.00	55.00 15.50	66.00 12.70	40.00 16.20
75.00 9.30	105.00 7.60	9.90 70.00	70.00 10.20	9.70 66.00	13.30 60.00	9.50 66.00	46.00 13.00
100.00 7.50	105.00 6.90	100.00 7.40	100.00 7.50	100.00 7.50	60.00 9.50	100.00 7.90	77.00 9.90
150.00 6.90	200.00 6.60	150.00 7.90	150.00 7.30	150.00 7.20	100.00 7.80	150.00 7.10	130.00 7.20
200.00 6.30	250.00 6.60	200.00 8.40	200.00 7.70	200.00 7.60	200.00 7.10	200.00 8.10	150.00 6.90
250.00 6.60	300.00 7.90	250.00 6.40	250.00 6.80	250.00 6.90	200.00 7.00	200.00 7.40	200.00 7.50
305.00 8.00	302.00 7.90	300.00 4.90	300.00 6.10	300.00 6.40	250.00 7.50	250.00 7.30	210.00 7.20
308.00 6.20	325.00 5.90	350.00 4.90	350.00 4.50	337.00 6.40	300.00 7.50	300.00 7.50	240.00 6.30
350.00 4.60	375.00 3.10	400.00 1.70	400.00 1.70	350.00 3.60	325.00 6.30	300.00 6.30	250.00 5.30
400.00 2.20	425.00 1.00	400.00 1.20	425.00 1.20	375.00 2.40	350.00 2.60	400.00 2.60	250.00 2.60
400.00 -1.30	425.00 -1.30	420.00 -1.10	475.00 -2.20	425.00 -1.10	400.00 -1.60	450.00 -1.60	450.00 -3.10
425.00 -1.80	450.00 -2.40	450.00 -1.10	500.00 -3.40	425.00 -1.50	450.00 -1.50	450.00 -1.50	450.00 -3.10
		475.00 -2.20	500.00 -2.20	475.00 -1.80	475.00 -1.80	475.00 -1.80	475.00 -1.80

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
690924	67	12:00	691020	68	11:30	691118	69	12:70	691218	70	12:50	700120	71	12:00
35.00	12:40	43.00	17.50	42.00	17.80	39.00	17.80	39.00	17.80	50.00	16.50	12.30	27.00	12.90
43.00	17:50	66.00	13:20	49.00	17:00	49.00	17:00	49.00	17:00	56.00	16:50	16:50	56.00	16:50
67.00	13:30	88.00	8.00	56.00	13:20	67.00	13:20	67.00	13:20	80.00	6.70	10:00	80.00	6.70
76.00	8:10	102.00	5:50	105.00	7:80	100.00	7:20	100.00	7:20	106.00	2.50	10:00	106.00	2.50
110.00	8:20	150.00	3:20	125.00	5:60	128.00	5:20	150.00	3:50	250.00	0.00	07.00	84.50	140.00
125.00	7:10	176.00	1:20	150.00	4:80	150.00	3:50	200.00	3:50	250.00	-1:50	200.00	3:80	140.00
175.00	2:20	200.00	-1:20	175.00	2:20	175.00	1:60	200.00	-1:50	200.00	1:20	200.00	1:20	200.00
200.00	2:30	225.00	-1:40	200.00	1:10	200.00	-1:40	200.00	-1:50	250.00	1:20	200.00	1:20	200.00
225.00	1:00	250.00	-2:20	225.00	-4:20	225.00	-1:80	250.00	0.00	250.00	-4:00	250.00	-4:00	250.00
250.00	4:00	275.00	-2:90	250.00	-1:20	250.00	-2:60	275.00	-2:60	275.00	-2:60	275.00	-2:60	275.00
275.00	-2:40	300.00	-2:90	300.00	-2:90	300.00	-3:60	300.00	-3:60	300.00	-3:60	300.00	-3:60	300.00

PROFILE 2

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
700228	75	12:00	701012	76	12:00	701207	77	12:00	701218	78	12:00	710112	79	12:00
0.00	12:70	45.00	15:80	49.00	16:70	39.00	14:80	39.00	14:80	25.00	13:60	12.00	6.00	12:50
9.00	12:70	54.00	15:70	55.00	15.00	49.00	16:40	49.00	16:40	38.00	13:50	25.00	13:50	25.00
33.00	14:00	46.00	17:10	67.00	13:10	65.00	13:20	67.00	13:20	48.00	16:20	50.00	16:20	50.00
46.00	17:10	66.00	13:50	90.00	9:20	73.00	8:40	71.00	8:00	62.00	14.00	59.00	14:20	62.00
52.00	15:50	66.00	13:10	100.00	8:00	100.00	6:50	100.00	6:50	70.00	4:10	68.00	6:40	70.00
66.00	8:20	110.00	7:20	110.00	4:20	125.00	4:20	125.00	4:20	100.00	5:90	78.00	7:70	100.00
86.00	7:90	150.00	3:30	150.00	2:90	150.00	2:70	125.00	4:10	100.00	5:40	100.00	5:40	100.00
100.00	7:90	176.00	1:10	175.00	1:10	175.00	1:10	175.00	1:10	175.00	3:40	172.00	3:40	172.00
125.00	1:30	200.00	1:10	200.00	1:10	200.00	1:10	200.00	1:10	200.00	3:40	200.00	3:40	200.00
172.00	1:30	225.00	1:10	225.00	1:10	225.00	1:10	225.00	1:10	225.00	1:10	225.00	1:10	225.00
200.00	1:40	250.00	-2:90	250.00	-2:90	250.00	-2:60	250.00	-2:60	250.00	-2:60	250.00	-2:60	250.00
225.00	-2:30	250.00	-2:90	250.00	-2:90	250.00	-2:60	250.00	-2:60	250.00	-2:60	250.00	-2:60	250.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
710624	83	710817	85	711007	86	711214	87	720112	88	720215	89	720224	90	720313	91
SVY	1200	SVY	1200	SVY	1200	SVY	1200	SVY	1200	SVY	1200	SVY	1200	SVY	1200
0.00	12.80	0.00	12.40	0.00	12.50	0.00	13.50	0.00	13.20	0.00	13.50	0.00	13.00	0.00	12.90
25.00	16.80	37.00	16.80	37.00	16.80	42.00	13.70	45.00	13.70	45.00	13.70	22.00	13.00	22.00	13.50
67.00	9.70	69.00	9.00	75.00	16.30	56.00	13.70	41.00	15.70	47.00	16.20	44.00	10.00	47.00	16.10
81.00	7.70	100.00	7.00	100.00	7.00	100.00	10.00	48.00	10.70	80.00	0.00	85.00	18.00	87.00	11.70
100.00	7.00	100.00	7.50	100.00	6.90	150.00	3.40	100.00	9.60	100.00	6.30	61.00	11.80	60.00	6.30
123.00	6.60	175.00	3.70	113.00	6.00	150.00	0.00	7.30	150.00	2.90	62.00	8.00	7.00	67.00	7.80
150.00	3.00	200.00	1.50	200.00	2.60	200.00	0.00	150.00	3.90	200.00	1.20	80.00	7.00	70.00	7.50
200.00	-1.00	250.00	-2.60	225.00	-2.10	225.00	-2.00	200.00	0.80	250.00	-1.50	100.00	5.30	100.00	5.10
225.00	-2.00	275.00	-3.80	225.00	-2.10	225.00	-2.00	225.00	-0.60	275.00	-2.20	200.00	2.60	180.00	4.50
								250.00	-3.00	300.00	-3.00	250.00	1.00	175.00	3.10
								300.00	-3.00	300.00	-3.00	300.00	1.00	250.00	1.60
								350.00	-2.60	350.00	-2.60	350.00	1.00	200.00	1.50
								375.00	-1.00	375.00	-1.00	375.00	1.00	150.00	1.00

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
720911	92	720923	93	721017	94	721205	95	730103	96	730213	97	730313	98	730429	99
SVY	1200	SVY	1100	SVY	900	SVY	900	SVY	1000	SVY	900	SVY	1100	SVY	00
0.00	12.90	0.00	13.10	0.00	13.00	0.00	13.10	0.00	14.70	0.00	14.00	0.00	13.00	0.00	13.00
40.00	16.00	37.00	14.80	16.30	16.30	5.00	13.50	42.00	17.70	37.00	18.20	32.00	18.00	20.00	13.50
47.00	15.00	40.00	15.20	42.00	17.00	15.00	16.60	70.00	16.10	48.00	14.30	42.00	14.00	25.00	10.50
58.00	12.20	85.00	7.60	57.00	18.00	38.00	15.30	76.00	17.00	17.00	7.00	16.00	14.00	85.00	8.20
64.00	6.80	100.00	6.50	7.00	7.00	60.00	12.00	150.00	7.80	150.00	6.00	7.00	6.00	100.00	7.50
80.00	6.00	150.00	6.10	96.00	6.10	7.50	190.00	7.40	179.00	8.00	100.00	7.50	100.00	100.00	7.90
100.00	6.00	200.00	6.10	100.00	7.20	200.00	6.50	200.00	7.40	150.00	8.00	150.00	7.50	200.00	6.00
150.00	3.00	250.00	5.90	150.00	6.50	250.00	5.00	250.00	5.00	192.00	6.30	192.00	7.00	200.00	1.00
200.00	1.00	300.00	2.40	200.00	6.30	300.00	7.30	300.00	1.80	250.00	3.10	250.00	1.50	300.00	1.00
250.00	-1.00	350.00	-2.40	250.00	5.00	350.00	7.40	350.00	-1.00	350.00	0.00	350.00	1.50	400.00	1.00
300.00	-3.10	400.00	-2.00	300.00	5.20	400.00	6.20	375.00	-2.30	381.00	-2.10	350.00	-2.60	450.00	1.00
								425.00	0.60	425.00	0.60	425.00	0.60	450.00	1.00
								475.00	2.00	475.00	2.00	475.00	2.00	475.00	2.00
								550.00	1.00	550.00	1.00	550.00	1.00	550.00	1.00
								575.00	-1.00	575.00	-1.00	575.00	-1.00	575.00	-1.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE	DATE	DATE	DATE	DATE	DATE
750402	750417	750612	750612	750612	750612
SRVY	SRVY	SRVY	SRVY	SRVY	SRVY
101	101	101	101	101	101
TIME	TIME	TIME	TIME	TIME	TIME
1100	1000	1000	900	900	900
0.00	13.60	0.00	13.60	0.00	13.60
35.00	19.20	31.00	18.10	36.00	18.90
81.00	18.70	47.00	17.70	83.00	18.00
90.00	8.10	79.00	9.30	90.00	8.40
106.00	8.00	105.00	7.90	100.00	8.10
150.00	5.10	137.00	7.70	150.00	7.30
200.00	2.80	169.00	4.20	190.00	5.90
250.00	1.20	205.00	4.80	200.00	3.90
300.00	1.60	225.00	1.70	225.00	8.90
		250.00	2.40	250.00	-2.60
		275.00	-2.10		

PROFILE 3

DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
620926	620926	621011	621023	621029	621108	621210	621210	621115	621115
SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY
I	P	II	5	6	7	A	A	9	9
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
9.00	10.60	14.60	106.00	15.40	123.00	14.80	103.00	14.70	14.60
18.00	12.10	126.00	13.80	140.00	10.70	105.00	136.00	12.60	20.00
172.00	15.20	166.00	10.20	239.00	10.50	214.00	156.00	12.60	20.00
175.00	12.10	197.00	11.60	19.30	268.00	9.50	332.00	14.90	100.00
212.00	10.50	214.00	10.30	9.40	313.00	5.40	277.00	7.00	167.00
232.00	9.30	235.00	9.30	281.00	9.40	312.00	6.90	4.00	202.00
266.00	9.10	259.00	9.20	290.00	9.70	314.00	4.50	360.00	4.10
307.00	9.00	272.00	9.30	314.00	6.90	350.00	2.00	400.00	7.00
330.00	6.90	300.00	10.00	342.00	2.40	374.00	-5.50	301.00	3.50
357.00	4.80	322.00	7.80	381.00	3.10	399.00	-2.70	400.00	-5.10
382.00	2.00	348.00	5.10	388.00	-1.80				
407.00	-0.10	370.00	1.40						
425.00	-1.00								

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 610121	DATE 610128	DATE 610204	DATE 610212	DATE 610220	DATE 610228	DATE 610304	DATE 610311
SVY 10	SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 16	SVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
250.00	9.00	200.00	9.60	24.00	10.10	192.00	12.00
300.00	7.10	225.00	8.90	56.00	10.20	177.00	10.70
351.00	3.60	250.00	8.50	75.00	10.20	222.00	8.20
400.00	-3.30	275.00	8.30	100.00	10.20	276.00	8.10
426.00	-1.50	300.00	6.90	175.00	10.20	301.00	7.40
		350.00	3.40	200.00	9.80	351.00	3.30
		401.00	-1.30	225.00	8.70	397.00	-1.60
		425.00	-1.60	276.00	8.00	426.00	-1.40
		200.00	9.80	301.00	7.80		
		225.00	9.80	350.00	2.00		
		276.00	8.20	401.00	-0.30		
		300.00	7.10				
		351.00	3.50				
		400.00	0.00				
		425.00	-1.30				

PROFILE 3

DATE 610319	DATE 610326	DATE 610404	DATE 610428	DATE 610613	DATE 610625	DATE 610711	DATE 610723
SVY 18	SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	10.90	14.10	-1.00	10.00	13.00	125.00	15.10
150.00	11.20	19.50	6.00	12.00	13.00	175.00	12.00
227.00	8.90	276.00	10.00	14.00	9.20	175.00	10.00
276.00	7.60	302.00	7.70	15.00	7.90	225.00	8.60
302.00	6.80	302.00	6.80	100.00	13.90	250.00	8.60
325.00	4.50	326.00	0.90	128.00	12.00	275.00	8.10
370.00	-1.10	377.00	0.00	152.00	11.70	301.00	8.10
401.00	-1.00	401.00	-1.60	200.00	9.20	326.00	6.50
				252.00	7.80	351.00	5.00
				277.00	7.80	401.00	1.40
				302.00	4.90	401.00	4.50
				352.00	0.20	400.00	0.00
				402.00	-2.90	400.00	-1.20

LUNG REACH ISLAND N.M.S.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 630804 SVY 26 TIME 1200	DATE 630806 SVY 28 TIME 1200	DATE 630808 SVY 27 TIME 1200	DATE 631010 SVY 30 TIME 1200	DATE 631025 SVY 31 TIME 1200	DATE 631115 SVY 32 TIME 1200	DATE 631227 SVY 33 TIME 1200	DATE 640115 SVY 34 TIME 1200
100.00	10.00	77.00	14.10	200.00	9.30	7.00	19.10
150.00	11.00	101.00	14.20	250.00	8.50	19.00	14.30
201.00	8.80	201.00	9.20	275.00	6.60	25.00	10.10
250.00	8.10	225.00	8.00	301.00	4.10	51.00	13.40
277.00	8.50	252.00	8.10	324.00	1.80	100.00	14.30
289.00	6.70	276.00	8.80	350.00	6.60	126.00	15.50
327.00	5.00	327.00	7.20			151.00	11.40
350.00	3.30	349.00	8.50			202.00	4.20
377.00	2.40	375.00	-1.00			227.00	17.00
						253.00	25.00
						285.00	50.80
						303.00	101.00
						329.00	152.00
						353.00	173.00
						380.00	203.00
						277.00	277.00
						305.00	305.00
						329.00	329.00
						354.00	354.00
						430.00	430.00

PROFILE 5

DATE 640217 SVY 35 TIME 1200	DATE 640219 SVY 36 TIME 1200	DATE 640225 SVY 38 TIME 1200	DATE 640623 SVY 39 TIME 1200	DATE 640629 SVY 40 TIME 1200	DATE 640920 SVY 41 TIME 1200	DATE 641120 SVY 42 TIME 1200
127.00	12.80	10.00	18.00	9.00	19.20	8.00
152.00	11.30	20.00	14.50	20.00	13.90	15.00
177.00	10.50	50.00	15.00	51.00	12.80	12.90
203.00	9.30	101.00	13.00	77.00	13.40	12.50
229.00	8.00	126.00	12.60	101.00	14.70	10.10
279.00	7.00	151.00	11.00	127.00	12.90	14.70
329.00	6.00	172.00	10.00	151.00	11.50	13.00
355.00	2.30	202.00	9.10	176.00	10.40	15.00
378.00	1.10	227.00	7.20	177.00	10.30	8.00
404.00	-1.10	253.00	5.70	203.00	9.40	15.00
430.00	-1.40	329.00	4.30	252.00	7.90	12.00
		354.00	3.10	277.00	9.70	14.20
		379.00	2.10	303.00	9.00	10.20
		404.00	0.00	329.00	8.40	11.10
				354.00	7.50	10.40
				377.00	6.00	10.40
				404.00	4.10	10.40
					270.00	10.40
					290.00	10.40
					310.00	10.40
					330.00	10.40
					350.00	10.40
					370.00	10.40
					390.00	10.40
					410.00	10.40
					430.00	10.40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASURED FROM IS FT

PROFILE 3

DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
126.00	13.10	101.00	13.20	0.00	13.70	-25.00	15.70	100.00	13.00	99.00	12.00
152.00	11.10	152.00	11.20	101.00	13.00	0.00	13.70	151.00	11.00	149.00	12.00
176.00	11.00	179.00	12.20	126.00	11.50	101.00	13.00	177.00	13.00	160.00	13.00
201.00	10.00	192.00	10.00	151.00	11.00	127.00	11.00	196.00	10.00	185.00	10.00
227.00	10.20	252.00	8.80	177.00	10.10	151.00	12.80	201.00	9.00	251.00	8.50
257.00	8.00	277.00	5.00	227.00	7.50	171.00	11.00	251.00	8.00	251.00	8.00
277.00	4.00	327.00	2.00	257.00	5.00	195.00	11.00	277.00	4.00	350.00	7.50
327.00	5.80	357.00	4.20	327.00	4.20	202.00	10.10	341.00	7.00	400.00	6.50
377.00	5.80	378.00	1.90	328.00	5.50	252.00	10.10	341.00	7.00	400.00	6.50
405.00	-2.20	429.00	0.00	353.00	2.20	302.00	8.60	403.00	3.50	427.00	1.00
		458.00	-1.70	378.00	0.00	312.00	9.20	474.00	2.00	451.00	1.00
			-2.50	394.00	-1.00	328.00	6.90	504.00	1.60	502.00	-2.00
						353.00	5.90	555.00	-1.10	528.00	-1.70
						448.00	-0.90	579.00	-2.10	528.00	-1.70
							605.00	-2.70			

PROFILE 5

DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY	DATE	SVY
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
100.00	12.00	100.00	13.00	100.00	14.00	100.00	15.00	100.00	16.00	100.00	17.00
126.00	12.40	150.00	12.30	151.00	12.50	152.00	12.60	153.00	12.70	154.00	12.80
174.00	14.00	173.00	14.10	176.00	14.20	175.00	14.30	174.00	14.40	173.00	14.50
200.00	12.90	201.00	13.30	216.00	10.60	150.00	12.90	185.00	12.40	137.00	12.00
220.00	4.20	221.00	4.90	251.00	4.30	164.00	17.00	170.00	16.80	170.00	17.00
252.00	8.30	276.00	7.20	276.00	7.60	175.00	17.30	176.00	17.20	185.00	17.00
302.00	7.50	301.00	6.40	301.00	6.70	180.00	16.20	180.00	16.50	210.00	16.90
352.00	6.00	351.00	5.00	351.00	5.30	220.00	15.00	220.00	15.30	250.00	15.70
375.00	8.00	374.00	6.00	374.00	6.30	240.00	14.00	240.00	14.30	270.00	14.70
432.00	4.80	402.00	6.80	402.00	7.80	250.00	8.20	249.00	8.30	300.00	7.40
453.00	6.00	452.00	5.00	451.00	6.00	301.00	8.10	299.00	7.60	350.00	7.90
502.00	1.10	477.00	5.00	502.00	6.40	352.00	8.60	349.00	8.20	370.00	7.80
528.00	-4.00	502.00	-2.50	502.00	-1.00	389.00	8.70	400.00	5.10	400.00	4.60
577.00	-0.50	528.00	-0.50	528.00	7.60	422.00	5.20	449.00	1.90	440.00	1.20
		604.00	-0.30	477.00	3.10	452.00	5.70	500.00	-1.10	500.00	-0.50
		604.00	-3.00	562.00	-1.30	477.00	3.40	550.00	1.10		
				588.00	-1.40	502.00	1.50	575.00	-2.00		
				603.00	-1.20	553.00	0.20				
				578.00	-0.80	602.00	-2.00				

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 691023	DATE 691113	DATE 681216	DATE 690115	DATE 690213	DATE 690309	DATE 690528	DATE 690924
SRVY 60	SRVY 61	SRVY 42	SRVY 63	SRVY 64	SRVY 65	SRVY 66	SRVY 67
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	16.10	100.00	16.20	100.00	15.10	100.00	16.10
120.00	17.50	110.70	125.00	130.00	17.10	118.00	17.40
140.00	19.10	125.00	140.00	150.00	17.70	124.00	18.40
160.00	17.20	150.00	127.70	150.00	17.00	124.00	17.60
180.00	17.20	165.00	175.00	190.00	17.00	170.00	17.10
200.00	17.20	180.00	175.00	190.00	17.00	185.00	17.80
220.00	17.20	180.00	190.00	210.00	17.00	190.00	18.90
240.00	17.20	185.00	210.00	230.00	17.00	200.00	10.90
260.00	17.20	205.00	225.00	250.00	17.00	250.00	225.00
280.00	17.20	215.00	240.00	270.00	17.00	260.00	240.00
300.00	17.20	235.00	250.00	290.00	17.00	300.00	250.00
320.00	17.20	270.00	275.00	310.00	17.00	350.00	250.00
340.00	17.20	300.00	300.00	330.00	17.00	350.00	250.00
360.00	17.20	325.00	325.00	350.00	17.00	350.00	250.00
380.00	17.20	350.00	350.00	370.00	17.00	350.00	250.00
400.00	17.20	400.00	400.00	400.00	17.00	350.00	250.00
420.00	17.20	425.00	425.00	425.00	17.00	350.00	250.00
440.00	17.20	450.00	450.00	450.00	17.00	350.00	250.00
460.00	17.20	475.00	475.00	475.00	17.00	350.00	250.00
480.00	17.20	500.00	500.00	500.00	17.00	350.00	250.00
500.00	17.20	525.00	525.00	525.00	17.00	350.00	250.00
520.00	17.20	550.00	550.00	550.00	17.00	350.00	250.00
540.00	17.20	575.00	575.00	575.00	17.00	350.00	250.00
560.00	17.20	600.00	600.00	600.00	17.00	350.00	250.00
580.00	17.20	625.00	625.00	625.00	17.00	350.00	250.00
600.00	17.20	650.00	650.00	650.00	17.00	350.00	250.00
620.00	17.20	675.00	675.00	675.00	17.00	350.00	250.00
640.00	17.20	700.00	700.00	700.00	17.00	350.00	250.00
660.00	17.20	725.00	725.00	725.00	17.00	350.00	250.00
680.00	17.20	750.00	750.00	750.00	17.00	350.00	250.00
700.00	17.20	775.00	775.00	775.00	17.00	350.00	250.00
720.00	17.20	800.00	800.00	800.00	17.00	350.00	250.00
740.00	17.20	825.00	825.00	825.00	17.00	350.00	250.00
760.00	17.20	850.00	850.00	850.00	17.00	350.00	250.00
780.00	17.20	875.00	875.00	875.00	17.00	350.00	250.00
800.00	17.20	900.00	900.00	900.00	17.00	350.00	250.00
820.00	17.20	925.00	925.00	925.00	17.00	350.00	250.00
840.00	17.20	950.00	950.00	950.00	17.00	350.00	250.00
860.00	17.20	975.00	975.00	975.00	17.00	350.00	250.00
880.00	17.20	1000.00	1000.00	1000.00	17.00	350.00	250.00
900.00	17.20	1025.00	1025.00	1025.00	17.00	350.00	250.00
920.00	17.20	1050.00	1050.00	1050.00	17.00	350.00	250.00
940.00	17.20	1075.00	1075.00	1075.00	17.00	350.00	250.00
960.00	17.20	1100.00	1100.00	1100.00	17.00	350.00	250.00
980.00	17.20	1125.00	1125.00	1125.00	17.00	350.00	250.00
1000.00	17.20	1150.00	1150.00	1150.00	17.00	350.00	250.00

PROFILE 3

DATE 691020	DATE 691114	DATE 691218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700928
SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73	SRVY 74	SRVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	16.00	100.00	16.00	100.00	16.00	100.00	16.00
120.00	17.10	110.00	122.00	130.00	17.10	115.00	17.10
140.00	17.10	120.00	140.00	150.00	17.10	125.00	17.10
160.00	17.10	130.00	160.00	170.00	17.10	140.00	17.10
180.00	17.10	140.00	180.00	190.00	17.10	155.00	17.10
200.00	17.10	150.00	200.00	210.00	17.10	170.00	17.10
220.00	17.10	160.00	220.00	230.00	17.10	185.00	17.10
240.00	17.10	170.00	240.00	250.00	17.10	200.00	17.10
260.00	17.10	180.00	260.00	270.00	17.10	215.00	17.10
280.00	17.10	190.00	280.00	290.00	17.10	230.00	17.10
300.00	17.10	200.00	300.00	310.00	17.10	245.00	17.10
320.00	17.10	210.00	320.00	330.00	17.10	260.00	17.10
340.00	17.10	220.00	340.00	350.00	17.10	275.00	17.10
360.00	17.10	230.00	360.00	370.00	17.10	290.00	17.10
380.00	17.10	240.00	380.00	390.00	17.10	305.00	17.10
400.00	17.10	250.00	400.00	410.00	17.10	320.00	17.10
420.00	17.10	260.00	420.00	430.00	17.10	335.00	17.10
440.00	17.10	270.00	440.00	450.00	17.10	350.00	17.10
460.00	17.10	280.00	460.00	470.00	17.10	365.00	17.10
480.00	17.10	290.00	480.00	490.00	17.10	380.00	17.10
500.00	17.10	300.00	500.00	510.00	17.10	395.00	17.10
520.00	17.10	310.00	520.00	530.00	17.10	410.00	17.10
540.00	17.10	320.00	540.00	550.00	17.10	425.00	17.10
560.00	17.10	330.00	560.00	570.00	17.10	440.00	17.10
580.00	17.10	340.00	580.00	590.00	17.10	455.00	17.10
600.00	17.10	350.00	600.00	610.00	17.10	470.00	17.10
620.00	17.10	360.00	620.00	630.00	17.10	485.00	17.10
640.00	17.10	370.00	640.00	650.00	17.10	500.00	17.10
660.00	17.10	380.00	660.00	670.00	17.10	515.00	17.10
680.00	17.10	390.00	680.00	690.00	17.10	530.00	17.10
700.00	17.10	400.00	700.00	710.00	17.10	545.00	17.10
720.00	17.10	410.00	720.00	730.00	17.10	560.00	17.10
740.00	17.10	420.00	740.00	750.00	17.10	575.00	17.10
760.00	17.10	430.00	760.00	770.00	17.10	590.00	17.10
780.00	17.10	440.00	780.00	790.00	17.10	605.00	17.10
800.00	17.10	450.00	800.00	810.00	17.10	620.00	17.10
820.00	17.10	460.00	820.00	830.00	17.10	635.00	17.10
840.00	17.10	470.00	840.00	850.00	17.10	650.00	17.10
860.00	17.10	480.00	860.00	870.00	17.10	665.00	17.10
880.00	17.10	490.00	880.00	890.00	17.10	680.00	17.10
900.00	17.10	500.00	900.00	910.00	17.10	695.00	17.10
920.00	17.10	510.00	920.00	930.00	17.10	710.00	17.10
940.00	17.10	520.00	940.00	950.00	17.10	725.00	17.10
960.00	17.10	530.00	960.00	970.00	17.10	740.00	17.10
980.00	17.10	540.00	980.00	990.00	17.10	755.00	17.10
1000.00	17.10	550.00	1000.00	1010.00	17.10	770.00	17.10

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710204	DATE 710304	DATE 710304	DATE 710304	DATE 710314	DATE 710314	DATE 710314
SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 81	SVY 81	SVY 81	SVY 81	SVY 81
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	100.00	15.90	100.00	14.10	90.00	84.00	11.60	100.00	15.60	100.00
122.00	120.00	13.90	119.00	15.50	100.00	100.00	15.70	130.00	13.60	101.00
150.00	150.00	13.40	125.00	10.70	125.00	121.00	10.40	160.00	15.40	174.00
177.00	160.00	12.90	150.00	13.60	150.00	163.00	10.40	180.00	16.40	200.00
200.00	197.00	10.40	175.00	15.10	175.00	180.00	15.60	205.00	10.40	235.00
220.00	200.00	13.50	175.00	15.90	187.00	192.00	14.40	225.00	9.60	250.00
237.00	225.00	11.40	200.00	14.40	201.00	200.00	14.30	250.00	7.60	300.00
250.00	240.00	9.40	225.00	7.90	230.00	230.00	15.90	300.00	5.80	350.00
300.00	300.00	6.30	275.00	6.30	275.00	250.00	7.10	400.00	1.80	400.00
350.00	350.00	4.80	300.00	5.70	300.00	300.00	5.50	400.00	-2.20	400.00
400.00	375.00	4.60	325.00	5.10	325.00	300.00	5.40	425.00	-5.20	450.00
	375.00	2.20	375.00	3.70	375.00	375.00	2.70	425.00	-5.20	500.00
	425.00	-2.60	400.00	1.70	400.00	-1.00	375.00	4.00	425.00	500.00
	425.00	-2.10	450.00	-2.70	425.00	400.00	4.00	400.00	425.00	450.00
	475.00	-3.00	475.00	-3.00	475.00	425.00	-2.10	400.00	475.00	500.00

PROFILE 3

DATE 710117	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720314	DATE 720314	DATE 720314	DATE 720314	DATE 720314
SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91	SVY 91	SVY 91	SVY 91	SVY 92
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	100.00	14.70	100.00	14.70	100.00	100.00	14.40	100.00	14.20	100.00
100.00	100.00	10.10	148.00	15.10	150.00	150.00	14.80	160.00	15.20	113.00
150.00	150.00	15.60	175.00	15.80	182.00	180.00	15.70	180.00	16.10	113.00
175.00	175.00	13.70	200.00	13.40	200.00	200.00	13.80	180.00	14.00	172.00
201.00	200.00	8.00	217.00	10.00	212.00	234.00	9.20	200.00	13.40	200.00
208.00	200.00	7.70	250.00	8.10	234.00	230.00	8.60	210.00	15.20	207.00
275.00	250.00	4.40	300.00	6.30	250.00	300.00	7.00	237.00	9.20	300.00
300.00	300.00	4.00	341.00	6.30	300.00	300.00	5.90	250.00	4.50	350.00
350.00	350.00	5.80	350.00	7.60	350.00	350.00	3.60	300.00	7.20	390.00
400.00	400.00	7.50	400.00	2.90	400.00	450.00	2.60	350.00	5.80	450.00
450.00	450.00	-2.70	450.00	2.10	450.00	450.00	2.00	400.00	5.40	450.00
500.00	500.00	-2.70	475.00	-2.10	500.00	450.00	4.00	400.00	5.40	500.00
575.00	575.00	-2.10	575.00	-2.10	575.00	575.00	1.70	500.00	5.80	500.00
	575.00	-2.10	575.00	-2.10	575.00	575.00	1.70	500.00	5.80	500.00
	600.00	-1.30	600.00	-1.30	600.00	600.00	1.30	650.00	650.00	650.00
	650.00	-2.10	650.00	-2.10	650.00	650.00	-2.10	650.00	650.00	650.00

LONG HEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE SVY TIME	72025 SVY TIME	DATE SVY TIME	710103 SVY TIME	DATE SVY TIME	710213 SVY TIME	DATE SVY TIME	710314 SVY TIME	DATE SVY TIME	710407 SVY TIME
100.00	17.20	100.00	15.30	100.00	15.20	0.00	19.30	100.00	14.70
150.00	15.00	150.00	15.60	140.00	15.40	100.00	14.60	150.00	15.30
172.00	14.10	172.00	16.10	200.00	16.30	133.00	16.60	200.00	16.30
203.00	14.00	200.00	15.70	200.00	15.40	154.00	15.20	212.00	15.20
231.00	9.10	231.00	15.20	228.00	9.60	174.00	16.20	256.00	8.30
250.00	8.00	250.00	10.00	250.00	8.20	200.00	16.70	300.00	7.00
300.00	7.30	300.00	9.00	287.00	7.40	214.00	15.50	350.00	1.50
350.00	7.40	350.00	7.20	300.00	6.50	229.00	10.80	375.00	-1.10
400.00	3.40	330.00	5.00	350.00	2.50	250.00	8.60	400.00	7.00
475.00	-1.20	384.00	5.00	400.00	2.40	300.00	4.30	450.00	3.00
500.00	-2.90	450.00	0.00	425.00	-1.70	400.00	2.10	450.00	2.00
		475.00	0.00			450.00	-2.10	480.00	-1.00
		500.00	-1.70			480.00	-2.00		

PROFILE 3

DATE SVY TIME	73017 SVY TIME	DATE SVY TIME	73012 SVY TIME
100.00	14.50	100.00	14.70
150.00	15.30	150.00	14.70
172.00	16.20	172.00	17.50
203.00	15.70	200.00	15.70
231.00	10.00	228.00	10.80
250.00	9.00	250.00	15.50
300.00	4.00	287.00	7.70
350.00	7.20	300.00	7.10
400.00	5.00	350.00	4.30
475.00	2.20	400.00	4.40
500.00	0.00	425.00	-1.70

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE a

DATE 620926	DATE 621028	DATE 621011	DATE 621023	DATE 621029	DATE 621104	DATE 621210	DATE 631115
SURVY 1	SURVY 2	SURVY 4	SURVY 5	SURVY 6	SURVY 7	SURVY 8	SURVY 9
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
52.00	145.00	145.00	12.70	145.00	132.00	121.00	11.00
58.00	152.00	155.00	9.70	155.00	145.00	132.00	50.00
70.00	158.00	170.00	7.80	170.00	155.00	159.00	78.00
77.00	165.00	177.00	6.70	177.00	167.00	177.00	96.00
80.00	170.00	182.00	5.70	182.00	177.00	197.00	106.00
82.00	175.00	187.00	4.70	187.00	198.00	225.00	119.00
85.00	180.00	192.00	3.70	192.00	225.00	249.00	128.00
88.00	185.00	197.00	2.70	197.00	245.00	269.00	150.00
90.00	190.00	202.00	1.70	202.00	265.00	294.00	201.00
92.00	195.00	207.00	0.70	207.00	285.00	319.00	251.00
95.00	200.00	212.00	0.00	212.00	305.00	344.00	301.00
98.00	205.00	217.00	0.00	217.00	325.00	369.00	351.00
205.00	205.00	217.00	0.00	217.00	345.00	394.00	401.00
285.00	285.00	285.00	0.00	285.00	410.00	419.00	451.00
300.00	300.00	300.00	0.00	300.00	430.00	444.00	501.00

PROFILE b

DATE 630121	DATE 630128	DATE 630204	DATE 630212	DATE 630220	DATE 630228	DATE 640309	DATE 640311
SURVY 10	SURVY 11	SURVY 12	SURVY 13	SURVY 14	SURVY 15	SURVY 16	SURVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
122.00	10.40	150.00	9.50	129.00	151.00	136.00	119.00
106.00	7.90	128.00	5.70	175.00	178.00	149.00	7.50
150.00	7.70	151.00	6.00	200.00	218.00	165.00	150.00
190.00	2.10	174.00	4.00	225.00	252.00	185.00	102.00
270.00	-1.50	203.00	3.20	251.00	276.00	199.00	176.00
		220.00	2.50	276.00	301.00	226.00	200.00
		276.00	-3.00	276.00	326.00	266.00	225.00
						286.00	251.00
							281.00

LONG BEACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE #

DATE 630319	DATE 630326	DATE 630408	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115
SVNY 1R	SVNY 1Q	SVNY 2U	SVNY 3O	SVNY 3I	SVNY 3P	SVNY 3S	SVNY 4Z
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
119.00	176.00	6.70	16.50	101.00	100.00	6.00	10.70
127.00	191.00	6.90	16.50	116.00	118.00	62.00	12.50
151.00	222.00	6.30	70.00	139.00	126.00	76.00	15.90
206.00	5.00	6.40	101.00	9.30	178.00	101.00	18.20
226.00	9.20	6.40	127.00	10.10	172.00	101.00	18.20
251.00	4.20	6.40	171.00	176.00	202.00	186.00	62.00
276.00	4.50	6.40	205.00	252.00	227.00	227.00	52.00
			276.00	276.00	250.00	250.00	52.00
			252.00	1.00	276.00	276.00	52.00
			270.00	-1.00			250.00
							300.00
							425.00

PROFILE #

DATE 640712	DATE 640810	DATE 640807	DATE 640825	DATE 640823	DATE 640824	DATE 640824	DATE 641211
SVNY 3S	SVNY 3A	SVNY 37	SVNY 38	SVNY 39	SVNY 40	SVNY 41	SVNY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
131.00	52.00	12.50	52.00	12.00	11.90	65.00	18.00
202.00	78.00	16.10	75.00	16.20	50.00	47.00	18.50
227.00	146.00	19.00	100.00	19.20	75.00	115.00	15.50
251.00	110.00	13.70	119.00	14.00	100.00	100.00	10.10
274.00	135.00	9.80	134.00	9.40	117.00	132.00	9.50
301.00	150.00	6.40	150.00	6.70	139.00	150.00	6.50
	150.00	7.60	175.00	7.50	150.00	150.00	7.50
	200.00	6.90	200.00	7.20	175.00	175.00	7.50
	225.00	6.20	225.00	6.40	200.00	200.00	7.50
	250.00	6.80	225.00	5.50	225.00	225.00	7.50
	275.00	12.70	250.00	4.80	250.00	250.00	7.50
	300.00	6.80	275.00	5.90	275.00	275.00	7.50
	300.00	1.00	300.00	3.00	300.00	300.00	7.50
	425.00	1.60	425.00	2.20	400.00	400.00	7.50
							325.00
							425.00

LONG BLACH ISLAND N.J.
 DATUM IS HSL MEASUREMENT

PROFILE 4

DATE 650119	DATE 650127	DATE 650135	DATE 651222	DATE 660125	DATE 660321	DATE 660922
SRVY 03	SRVY 04	SRVY 05	SRVY 07	SRVY 08	SRVY 11	SRVY 12
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
130.00	105.00	184.00	100.00	11.50	105.00	115.00
150.00	62.50	131.00	125.00	22.00	125.00	156.00
200.00	0.70	175.00	8.10	91.00	150.00	170.00
250.00	5.00	200.00	7.40	100.00	198.00	197.00
275.00	1.10	225.00	4.90	120.00	229.00	223.00
300.00	0.50	250.00	4.80	134.00	245.00	249.00
325.00	-1.10	275.00	2.60	150.00	275.00	273.00
		300.00	-2.50	200.00	324.00	299.00
		325.00	-2.50	225.00	339.00	321.00
				250.00		330.00
				300.00		330.00

PROFILE 4

DATE 670116	DATE 670505	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 680629
SRVY 51	SRVY 52	SRVY 55	SRVY 56	SRVY 57	SRVY 5A	SRVY 59
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
115.00	109.00	205.00	110.00	20.10	20.50	115.00
125.00	182.00	182.00	140.00	19.30	130.00	130.00
142.00	187.00	192.00	172.00	16.10	150.00	150.00
196.00	139.00	190.00	175.00	8.30	180.00	180.00
214.00	109.00	223.00	202.00	6.70	200.00	200.00
217.00	8.90	248.00	4.30	250.00	246.00	245.00
248.00	7.80	288.00	1.90	276.00	250.00	250.00
274.00	6.90	307.00	-1.00	300.00	300.00	300.00
323.00	0.00	347.00	-2.00	300.00	320.00	320.00
				275.00		320.00
				300.00		300.00

LONG BEACH ISLAND S.S.J.
 DATUM IS NSL MEASUREMENT IS FT

PROFILE 4

DATE SERV TIME	40123 60 1200	DATE SERV TIME	40124 62 1200	DATE SERV TIME	60115 63 1200	DATE SERV TIME	40213 64 1200	DATE SERV TIME	60030 65 1200	DATE SERV TIME	60052R 66 1200	DATE SERV TIME	60120 68 1200
110.00	19.90	110.00	19.90	110.00	20.00	110.00	19.90	110.00	19.90	110.00	20.00	110.00	19.90
135.00	19.70	135.00	20.00	135.00	19.50	135.00	19.80	135.00	20.20	135.00	20.30	135.00	20.50
160.00	17.30	155.00	17.80	155.00	17.80	155.00	17.80	155.00	17.80	155.00	17.80	155.00	16.20
192.00	8.50	160.00	9.30	167.00	9.00	166.00	9.10	171.00	8.10	200.00	7.10	162.00	7.20
225.00	8.10	200.00	8.00	200.00	7.00	175.00	8.80	200.00	2.10	210.00	7.20	175.00	7.40
250.00	8.30	250.00	3.20	250.00	6.00	250.00	6.80	250.00	-4.80	250.00	6.20	210.00	7.80
260.00	6.30	300.00	1.10	267.00	6.20	250.00	6.00	300.00	-1.50	250.00	6.80	210.00	7.80
275.00	5.80			275.00	6.90	175.00	4.60	300.00	3.60	300.00	6.80	210.00	7.80
320.00	3.80			320.00	7.50	320.00	7.20	300.00	1.20	300.00	6.80	210.00	7.80
350.00	2.30			350.00	7.70	320.00	7.20	300.00	1.20	300.00	6.80	210.00	7.80
375.00	1.80			350.00	-1.80	350.00	-1.80	350.00	-1.50	300.00	-1.90	210.00	4.50
400.00	0.80			400.00	-2.10	400.00	-2.10	400.00	-1.80	400.00	-1.50	400.00	1.50
425.00	-1.00			425.00	-1.50	425.00	-1.50	425.00	-1.50	425.00	-1.50	425.00	1.50

PROFILE 4

DATE SERV TIME	60114 69 1200	DATE SERV TIME	700120 71 1200	DATE SERV TIME	700121 72 1200	DATE SERV TIME	700119 73 1200	DATE SERV TIME	700521 74 1200	DATE SERV TIME	70052R 75 1200	DATE SERV TIME	70112 76 1200
110.00	20.00	110.00	20.00	110.00	20.00	110.00	20.00	110.00	19.80	110.00	19.90	110.00	19.90
130.00	20.30	130.00	20.00	135.00	20.40	135.00	20.40	135.00	10.80	130.00	20.30	135.00	20.50
139.00	16.50	137.00	17.30	150.00	10.40	185.00	8.10	200.00	7.20	150.00	10.50	150.00	10.70
150.00	10.10	156.00	9.80	175.00	9.10	223.00	5.90	210.00	7.20	175.00	8.60	175.00	8.50
150.00	8.80	175.00	8.50	180.00	8.00	210.00	7.60	250.00	4.30	200.00	7.00	210.00	7.50
175.00	5.00	210.00	7.00	200.00	5.80	225.00	5.20	300.00	-2.10	250.00	7.00	250.00	6.20
200.00	8.80	225.00	5.80	235.00	6.10	250.00	6.00	350.00	-2.50	240.00	7.00	250.00	6.20
225.00	5.00	250.00	5.10	250.00	6.00	282.00	-1.70	375.00	-3.80	300.00	6.20	275.00	6.50
250.00	4.00	267.00	2.80	300.00	6.90			350.00	2.80	320.00	6.80	300.00	2.80
275.00	1.00	275.00	7.20	350.00	6.00			350.00	1.80	350.00	6.80	350.00	1.80
320.00	1.00	300.00	1.80	400.00	-1.50			400.00	-1.50	400.00	-1.50	400.00	-1.50
350.00	2.00	400.00	2.00	411.00	-2.50			411.00	-2.50	411.00	-2.50	411.00	-2.50
375.00	1.30	450.00	-3.70	400.00	-3.60			400.00	-3.60	400.00	-3.60	400.00	-3.60
400.00	0.50	495.00	-3.60	495.00	-3.60			495.00	-3.60	495.00	-3.60	495.00	-3.60
425.00	-2.20			425.00	-2.20			425.00	-2.20	425.00	-2.20	425.00	-2.20
450.00	-1.00			450.00	-1.00			450.00	-1.00	450.00	-1.00	450.00	-1.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE u

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
110.00	19.80	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.00	110.00	19.90	110.00
132.00	20.30	134.00	19.90	125.00	20.00	130.00	20.00	134.00	20.00	134.00	20.30	135.00
152.00	11.30	174.00	11.30	130.00	20.20	130.00	20.20	146.00	19.30	150.00	12.30	155.00
157.00	12.10	181.00	11.80	150.00	11.80	150.00	12.70	156.00	11.70	174.00	8.00	182.00
149.00	4.00	200.00	4.60	150.00	12.50	160.00	10.50	175.00	9.10	200.00	4.70	182.00
200.00	7.20	250.00	4.80	175.00	8.40	175.00	8.40	205.00	5.00	200.00	8.00	200.00
225.00	5.80	300.00	1.30	200.00	6.70	200.00	6.30	260.00	2.00	250.00	5.30	238.00
250.00	4.30	350.00	-1.30	230.00	5.20	250.00	3.30	269.00	5.60	265.00	-1.00	240.00
300.00	1.50	400.00	-2.70	280.00	5.20	300.00	2.00	275.00	4.20	300.00	-2.40	300.00
350.00	-1.70	450.00	-3.30	300.00	-1.60	300.00	-1.60	300.00	-1.60	300.00	-1.60	300.00
375.00	-1.70	500.00	-3.30	345.00	-1.60	345.00	-1.60	345.00	-1.60	345.00	-1.60	345.00

PROFILE u

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
110.00	19.90	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.00	110.00	19.90	110.00
135.00	20.30	135.00	20.30	135.00	20.30	135.00	20.30	135.00	20.30	135.00	20.30	135.00
155.00	12.40	181.00	11.80	150.00	11.80	150.00	12.60	156.00	11.80	174.00	8.00	182.00
172.00	9.10	200.00	4.60	175.00	8.40	175.00	8.40	205.00	5.00	200.00	8.00	200.00
200.00	9.00	225.00	5.50	200.00	6.60	200.00	6.60	250.00	2.00	250.00	5.30	238.00
225.00	8.60	250.00	4.70	240.00	5.20	250.00	3.30	269.00	5.60	265.00	-1.00	240.00
250.00	6.10	300.00	-1.30	300.00	-1.30	300.00	-1.30	300.00	-1.30	300.00	-1.30	300.00
300.00	-2.00	350.00	-2.30	300.00	-2.30	300.00	-2.30	300.00	-2.30	300.00	-2.30	300.00
350.00	-2.00	400.00	-2.30	325.00	-2.30	325.00	-2.30	325.00	-2.30	325.00	-2.30	325.00

LONG BEACH ISLAND N.S.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 4

DATE SRVY TIME	721017 90 000	DATE SRVY TIME	721205 90 1000	DATE SRVY TIME	740103 90 1000	DATE SRVY TIME	740213 90 1000	DATE SRVY TIME	740313 90 1100	DATE SRVY TIME	740320 90 1600	DATE SRVY TIME	740402 100 1200	DATE SRVY TIME	740417 100 1000
110.00	19.90	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.20	110.00	20.10	110.00	19.90	110.00	20.00
130.00	20.00	130.00	20.60	130.00	20.20	132.00	20.70	132.00	20.60	135.00	20.50	132.00	20.50	132.00	20.00
139.00	17.60	151.00	13.70	149.00	19.60	158.00	17.70	161.00	16.50	169.00	14.90	138.00	17.70	147.00	15.30
160.00	19.70	171.00	10.70	166.00	11.00	169.00	14.60	162.00	11.30	160.00	7.60	148.00	15.20	157.00	9.20
156.00	13.30	193.00	9.20	188.00	7.00	163.00	11.00	166.00	9.70	200.00	3.00	150.00	7.80	200.00	5.10
163.00	11.20	200.00	8.00	200.00	6.80	165.00	10.00	200.00	9.30	250.00	0.00	178.00	9.80	245.00	1.50
200.00	8.50	225.00	5.50	225.00	5.70	178.00	8.00	250.00	-2.60	267.00	-1.50	200.00	9.80	250.00	-1.10
280.00	6.50	250.00	2.20	250.00	2.00	162.00	6.10	200.00	4.90	250.00	4.90	250.00	4.90	250.00	-1.50
300.00	5.20	275.00	-2.70	275.00	-1.00	200.00	4.90	300.00	-1.90	300.00	-1.90	300.00	-1.90	300.00	-1.50
325.00	-2.20														

PROFILE 0

DATE SRVY TIME	730612 103 900
110.00	20.00
120.00	20.70
133.00	20.00
147.00	18.00
156.00	7.00
200.00	6.00
275.00	0.50
300.00	1.10
325.00	-1.60

LONG BEACH ISLAND No. 3
 DATUM IS MSL MEASUREMENT IS FT

PROFILE d

DATE 630319	DATE 630326	DATE 630404	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115
SRVY 1A	SRVY 1Q	SRVY 20	SRVY 30	SRVY 31	SRVY 32	SRVY 33	SRVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
119.00	174.00	165.00	6.70	10.50	101.00	9.30	100.00
127.00	191.00	167.00	6.40	50.00	116.00	10.00	114.00
151.00	227.00	175.00	6.30	70.00	139.00	9.30	126.00
206.00	5.90	191.00	6.40	101.00	9.30	176.00	11.00
226.00	4.20	201.00	6.40	127.00	10.10	177.00	5.50
251.00	4.20	227.00	6.40	171.00	9.80	207.00	1.40
276.00	4.20	276.00	6.40	205.00	9.80	227.00	4.40
		276.00	4.50	205.00	9.90	276.00	4.10
				226.00	1.00	276.00	4.10
				270.00	1.00		1.70
							310.00
							425.00

PROFILE u

DATE 640212	DATE 640219	DATE 640225	DATE 640229	DATE 640229	DATE 640229	DATE 640229	DATE 640229
SRVY 35	SRVY 41	SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
131.00	52.00	12.50	52.00	12.00	25.00	11.90	85.00
202.00	74.00	16.10	75.00	16.20	50.00	12.50	97.00
227.00	1.60	100.00	19.20	86.00	17.10	75.00	14.50
254.00	1.10	123.00	13.70	119.00	14.00	100.00	18.90
279.00	1.20	143.00	9.80	117.00	14.20	132.00	9.50
303.00	2.10	150.00	8.40	150.00	9.00	150.00	8.50
		150.00	7.40	175.00	8.60	175.00	8.20
		175.00	7.20	200.00	8.00	200.00	8.40
		200.00	6.90	200.00	7.20	200.00	7.00
		225.00	6.20	225.00	5.50	225.00	5.80
		250.00	5.80	250.00	4.80	250.00	5.20
		270.00	5.00	275.00	4.50	275.00	4.80
		300.00	4.00	300.00	3.00	300.00	3.50
		325.00	1.60	325.00	2.60	325.00	2.60

LONG BEACH ISLAND N.J.
DATUM IS HSL MEASUREMENT IS FT

PROFILE 5

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
420926	1200	620028	1200	621011	1200	621023	1200	621029	1200	621108	1200	621210	1200	621210	1200
SRVY	1	SRVY	2	SRVY	4	SRVY	5	SRVY	6	SRVY	7	SRVY	A	SRVY	A
333.00	17.40	398.00	19.30	367.00	13.40	385.00	18.80	386.00	18.90	389.00	18.60	389.00	18.60	317.00	18.00
351.00	15.20	426.00	11.00	375.00	17.40	417.00	11.00	415.00	11.60	410.00	12.00	389.00	13.20	352.00	17.70
363.00	19.40	438.00	8.90	385.00	19.10	440.00	8.60	439.00	8.40	440.00	8.90	383.00	17.20	341.00	16.50
368.00	12.40	457.00	7.80	409.00	12.60	473.00	8.20	473.00	8.00	483.00	8.90	474.00	11.20	347.00	16.80
385.00	18.10	480.00	9.80	446.00	9.70	508.00	5.00	527.00	4.20	529.00	6.50	481.00	6.10	342.00	17.50
389.00	19.50	503.00	2.30	467.00	7.80	528.00	2.10	509.00	-3.10	612.00	-3.00	502.00	5.40	417.00	10.90
408.00	11.70	511.00	4.00	509.00	0.00	563.00	-1.40	595.00	-4.60	599.00	1.40	579.00	-2.50	407.00	8.10
472.00	7.20	572.00	1.0	539.00	0.00	724.00	-0.00	724.00	-3.20	609.00	-2.50	609.00	-2.50	517.00	4.20
498.00	5.30	593.00	-0.00	570.00	-2.40									569.00	-2.50
518.00	3.30														
538.00	1.10														
560.00	-1.10														
580.00	-1.70														

PROFILE 5

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
430121	1200	630128	1200	630212	1200	630220	1200	630226	1200	630304	1200	630311	1200	630311	1200
SRVY	0	SRVY	11	SRVY	0	SRVY	16	SRVY	17	SRVY	17	SRVY	17	SRVY	17
507.00	6.20	318.00	18.10	418.00	11.00	418.00	11.00	403.00	6.40	468.00	7.60	493.00	6.70	444.00	4.40
517.00	4.50	348.00	16.20	442.00	8.90	442.00	8.80	518.00	5.60	503.00	6.00	517.00	5.20	467.00	7.20
568.00	-1.00	389.00	16.10	494.00	6.70	468.00	7.50	568.00	1.40	518.00	5.10	521.00	4.50	568.00	8.20
		417.00	10.90	520.00	5.30	493.00	6.80	610.00	-1.10	583.00	3.40	594.00	3.70	584.00	1.90
		417.00	10.90	543.00	2.70	510.00	5.40	568.00	1.00	568.00	1.00	568.00	1.00	568.00	1.00
		517.00	4.10	569.00	1.40	566.00	2.00	592.00	-2.60	618.00	-1.80	593.00	-1.20	593.00	-1.20
		560.00	-1.00	594.00	-1.40	604.00	-1.70								
		618.00	-2.40												

LONG REACH ISLAND N.J.
 DATUM IS NSL MEASUREMENT IS FT

PROFILE 5

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
489.00	7.50	418.00	418.00	18.30	492.00	7.00	402.00	7.00	417.00	11.00	493.00	9.00	532.00	4.80	532.00	4.80	
490.00	7.50	408.00	348.00	16.00	523.00	7.50	519.00	7.90	402.00	9.00	460.00	7.50	543.00	7.50	543.00	7.50	
521.00	6.70	493.00	367.00	16.30	542.00	6.10	523.00	6.00	467.00	7.60	593.00	7.30	614.00	7.30	614.00	7.30	
520.00	2.40	520.00	372.00	16.70	570.00	2.80	548.00	3.00	578.00	7.90	543.00	6.60					
542.00	2.40	520.00	417.00	7.00	678.00	2.40	648.00	0.00	531.00	8.10	543.00	6.20					
570.00	5.30	572.00	492.00	6.20	604.00	-2.10	602.00	-2.10	563.00	3.00	568.00	3.00					
584.00	-2.20	570.00	518.00	6.80	592.00	6.80	602.00	-2.10	568.00	2.40	618.00	1.00					
			592.00	6.90	592.00	5.30	566.00	2.70	619.00	6.30	618.00	1.00					
			566.00	2.70	566.00	5.66.00	2.70	566.00	6.33.00	-7.0	632.00	3.0					
			618.00	-1.10	618.00	6.18.00	-1.10	618.00	6.33.00	-7.0	632.00	3.0					
			604.00	-2.40	604.00	6.04.00	-2.40	604.00	6.33.00	-7.0	632.00	3.0					

PROFILE 5

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
401.00	4.70	492.00	373.00	16.50	418.00	10.70	403.00	8.60	418.00	10.90	318.00	18.00	15.00	7.40	15.00	7.40	
407.00	7.30	519.00	418.00	10.90	468.00	6.50	469.00	6.90	404.00	9.00	592.00	18.00	65.00	7.40	65.00	7.40	
493.00	7.20	520.00	440.00	9.50	493.00	7.60	493.00	7.90	409.00	8.30	378.00	18.00	117.00	7.40	117.00	7.40	
570.00	4.20	500.00	440.00	7.80	512.00	8.10	519.00	7.00	405.00	7.00	418.00	11.00	183.00	5.50	183.00	5.50	
533.00	4.30	568.00	480.00	6.40	519.00	5.90	505.00	2.00	520.00	4.50	493.00	9.00	164.00	5.50	164.00	5.50	
542.00	5.00	590.00	519.00	7.30	570.00	-2.70	571.00	6.80	500.00	4.80	494.00	7.50	191.00	6.90	191.00	6.90	
567.00	6.80	620.00	540.00	6.00	585.00	-2.50	585.00	-2.50	500.00	4.80	520.00	8.20	217.00	7.70	217.00	7.70	
619.00	6.80	570.00	570.00	1.20					598.00	2.40	581.00	3.00	261.00	11.10	261.00	11.10	
									598.00	1.00	598.00	1.00	267.00	12.50	267.00	12.50	
									620.00	-1.00	620.00	-1.00	318.00	18.30	318.00	18.30	
									695.00	-2.60	695.00	-2.60	363.00	16.50	363.00	16.50	
													378.00	10.40	378.00	10.40	
													409.00	5.30	409.00	5.30	
													490.00	6.90	490.00	6.90	
													520.00	4.60	520.00	4.60	
													545.00	1.20	545.00	1.20	
													621.00	-1.60	621.00	-1.60	

LONG BEACH ISLAND N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 5

DATE SHVY TIME	640212 35 1200	DATE SHVY TIME	640310 36 1200	DATE SHVY TIME	640407 37 1200	DATE SHVY TIME	640525 3A 1200	DATE SHVY TIME	640623 39 1200	DATE SHVY TIME	640729 40 1200	DATE SHVY TIME	640824 41 1200	DATE SHVY TIME	641201 42 1200
409.00	31.10	360.00	19.50	393.00	16.60	318.00	18.00	317.00	18.00	318.00	18.00	362.00	17.20	359.00	18.50
408.00	8.20	371.00	17.90	372.00	16.30	383.00	18.50	399.00	18.20	385.00	17.50	369.00	14.00	369.00	17.00
408.00	7.40	479.00	16.70	386.00	17.00	383.00	17.70	414.00	17.00	403.00	9.10	469.00	11.10	491.00	12.00
408.00	4.00	482.00	18.50	405.00	15.20	393.00	15.70	424.00	9.00	468.00	11.50	473.00	10.20	474.00	10.50
520.00	3.70	466.00	6.60	495.00	9.10	408.00	12.00	469.00	9.50	480.00	8.40	460.00	10.50	469.00	10.10
570.00	1.80	520.00	2.90	497.00	6.90	460.00	9.10	495.00	7.40	519.00	7.10	495.00	8.60	490.00	9.50
500.00	-1.10	595.00	1.10	520.00	8.00	469.00	8.80	519.00	8.00	500.00	7.50	518.00	6.70	519.00	6.00
		571.00	-1.10	505.00	8.70	490.00	7.90	533.00	5.40	561.00	7.50	552.00	3.10	545.00	3.00
		590.00	-1.20	500.00	-1.60	519.00	3.80	595.00	-3.10	620.00	-2.60	587.00	-1.00	569.00	-4.00

PROFILE 5

DATE SHVY TIME	650119 33 1200	DATE SHVY TIME	650227 34 1200	DATE SHVY TIME	650907 35 1200	DATE SHVY TIME	651027 36 1200	DATE SHVY TIME	651222 37 1200	DATE SHVY TIME	640124 38 1200	DATE SHVY TIME	640623 39 1200	DATE SHVY TIME	640923 40 1200
409.00	12.10	360.00	16.50	360.00	16.50	380.00	16.40	377.00	17.90	317.00	18.50	407.00	12.40	360.00	20.00
419.00	11.00	493.00	17.00	388.00	17.80	383.00	18.30	393.00	17.00	350.00	16.50	402.00	9.70	409.00	12.00
408.00	10.50	417.00	12.50	410.00	12.30	419.00	12.50	445.00	12.10	371.00	19.00	467.00	7.60	463.00	8.00
458.00	9.50	495.00	9.80	498.00	9.70	499.00	11.40	468.00	8.70	392.00	17.40	493.00	7.00	463.00	8.00
493.00	9.50	496.00	7.60	468.00	8.00	464.00	8.70	524.00	8.00	411.00	12.60	518.00	7.80	506.00	8.00
519.00	4.80	520.00	6.10	490.00	6.10	519.00	8.90	557.00	6.00	418.00	11.90	543.00	4.50	517.00	3.60
550.00	5.10	585.00	-3.40	537.00	7.80	539.00	8.50	569.00	5.00	468.00	8.10	590.00	4.50	593.00	-2.20
595.00	1.70	595.00	-1.10	505.00	6.20	620.00	-4.50	595.00	1.60	519.00	5.60	619.00	-1.50	619.00	-2.50
608.00	-1.10	570.00	6.20	635.00	-1.60	606.00	-1.70	580.00	2.10	619.00	0.00	669.00	-3.40		
671.00	-2.40	610.00	-2.20	610.00	-2.10	596.00	-2.20	621.00	-2.70	621.00	-2.70	786.00	-3.70		

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT 15 FT

PROFILE 5

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	
470105	19:30	51	670505	18:00	50	671218	19:10	56	680227	18:00	57	680327	18:00	58	
384.00	18.20	16.90	362.00	17.90	16.50	379.00	17.90	17.90	384.00	18.50	17.90	384.00	18.00	18.00	
384.00	18.20	16.90	362.00	17.90	16.50	379.00	17.90	17.90	384.00	18.50	17.90	384.00	18.00	18.00	
399.00	15.00	11.50	411.00	12.00	10.50	415.00	11.00	10.50	383.00	18.50	18.50	384.00	19.20	19.20	
422.00	11.50	11.50	405.00	10.50	10.50	409.00	10.50	10.50	391.00	18.50	18.50	393.00	19.00	19.00	
440.00	9.00	9.00	468.00	9.00	9.00	470.00	7.90	518.00	18.50	18.50	18.50	471.00	18.50	18.50	
493.00	8.50	519.00	503.00	7.90	602.00	4.00	417.00	12.60	412.00	10.50	468.00	9.00	418.00	12.60	
519.00	7.00	569.00	549.00	5.90	666.00	-2.70	518.00	4.00	468.00	9.10	518.00	8.50	458.00	10.00	
554.00	7.00	618.00	593.00	2.90			543.00	6.80	493.00	8.90	588.00	6.50	468.00	9.00	
570.00	6.00	618.00	608.00	-2.00			567.00	3.90	517.00	6.00	616.00	1.80	518.00	9.20	
594.00	2.30	603.00	603.00	-1.60			606.00	-1.10	567.00	6.80	667.00	-2.90	568.00	8.70	
619.00	1.10	654.00	-3.00	657.00	-2.90		617.00	-1.30	593.00	1.00	617.00	-2.90	593.00	8.70	
634.00	-1.30						632.00	-2.30	618.00	-1.30	632.00	-2.30	618.00	8.20	
														618.00	1.00
														603.00	8.80
														668.00	-1.80

PROFILE 5

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	
681023	18:00	60	681113	18:00	61	681218	18:50	62	690109	18:50	67	690220	18:50	68	
318.00	18.00	18.00	318.00	18.00	18.00	318.00	18.50	18.50	318.00	18.00	18.50	320.00	18.50	18.50	
353.00	18.30	18.00	378.00	19.00	18.00	384.00	18.50	18.50	350.00	18.50	18.50	368.00	18.50	18.50	
363.00	19.20	19.20	395.00	15.60	17.40	398.00	18.00	18.00	378.00	18.50	18.50	372.00	18.50	18.50	
385.00	19.00	19.00	410.00	13.00	210.00	418.00	13.10	418.00	328.00	18.10	429.00	11.50	432.00	11.50	
393.00	16.80	468.00	468.00	8.20	418.00	13.10	403.00	10.50	418.00	13.20	456.00	13.60	450.00	13.60	
418.00	12.70	518.00	518.00	5.50	468.00	8.20	468.00	9.20	403.00	10.70	472.00	9.90	475.00	9.50	
443.00	10.00	568.00	568.00	3.00	518.00	6.00	518.00	4.90	468.00	10.90	525.00	9.80	525.00	9.70	
468.00	8.40	618.00	618.00	2.10	568.00	6.90	518.00	8.60	493.00	9.10	525.00	7.00	525.00	6.50	
		668.00	-1.10	568.00	8.00	568.00	5.30	518.00	6.90	518.00	4.60	550.00	4.60	550.00	4.60
		693.00	-1.40	593.00	4.50	593.00	2.80	568.00	6.20	531.00	6.10	578.00	2.50	578.00	2.00
				618.00	2.10	618.00	1.50	593.00	3.30	568.00	3.00	600.00	1.00	600.00	1.00
				643.00	-1.50	643.00	-1.60	618.00	4.00	618.00	-1.50	625.00	1.10	625.00	1.10
				668.00	-1.20	668.00	-1.20	603.00	-2.10	603.00	-3.20	650.00	-2.60	650.00	-2.50
				693.00	-1.80	693.00	-1.80	668.00	-3.70	668.00	-3.70	700.00	-1.80	700.00	-1.80
				718.00	-1.50	718.00	-1.50					725.00	-1.80	725.00	-1.80
				743.00	1.40	743.00	1.40								
				768.00	1.70	768.00	1.70								
				793.00	-2.70	793.00	-2.70								

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME		
335.00	16.80	335.00	17.30	336.00	16.80	339.00	16.90	337.00	16.70	338.00	16.90	338.00	16.10
350.00	16.80	355.00	19.50	351.00	18.40	350.00	19.00	360.00	19.50	350.00	18.50	350.00	18.10
370.00	16.00	400.00	17.10	389.00	17.70	384.00	17.90	400.00	18.10	363.00	19.20	375.00	16.00
400.00	16.70	450.00	11.20	400.00	16.80	400.00	16.80	443.00	13.50	495.00	17.20	400.00	16.70
450.00	10.80	470.00	10.50	450.00	11.40	433.00	13.60	450.00	9.60	429.00	13.50	420.00	16.80
480.00	10.50	500.00	8.60	500.00	9.00	550.00	2.60	442.00	10.10	500.00	10.20	450.00	16.20
500.00	9.00	550.00	4.70	507.00	8.30	600.00	-1.90	450.00	8.80	450.00	10.10	500.00	8.70
525.00	8.00	600.00	-8.80	550.00	4.90	500.00	5.90	550.00	4.10	460.00	8.50	500.00	8.80
550.00	2.80	600.00	-2.90	600.00	4.00	600.00	4.40	600.00	-1.00	500.00	8.80	550.00	4.50
600.00	-8.50	625.00	-2.80	625.00	-1.10	600.00	6.00	625.00	-1.00	500.00	8.10	600.00	4.50
650.00	-1.50	650.00	-2.10	650.00	-3.10	650.00	-2.60	625.00	-3.00	600.00	-2.10	625.00	-2.50

PROFILE 5

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME
335.00	16.80	335.00	16.40	336.00	16.80	339.00	16.90	337.00	16.70	338.00	16.90	338.00	16.80
350.00	16.80	350.00	16.50	351.00	17.00	350.00	17.00	360.00	17.50	350.00	17.50	350.00	17.20
370.00	16.80	400.00	17.10	389.00	17.70	384.00	17.90	400.00	18.10	363.00	19.20	375.00	16.00
400.00	16.40	450.00	11.20	400.00	16.80	400.00	16.80	443.00	13.50	495.00	17.20	400.00	16.70
450.00	13.00	470.00	11.20	450.00	11.80	433.00	13.60	450.00	9.60	429.00	13.50	420.00	16.80
480.00	11.00	500.00	8.60	500.00	9.00	550.00	2.60	442.00	10.10	500.00	10.20	450.00	16.20
500.00	7.30	525.00	4.50	500.00	8.90	550.00	6.30	487.00	10.10	500.00	12.00	470.00	16.20
525.00	5.90	550.00	1.20	500.00	7.60	525.00	1.30	500.00	16.10	460.00	16.10	500.00	7.20
550.00	2.80	575.00	-4.60	525.00	5.10	550.00	-1.30	500.00	17.30	525.00	4.70	525.00	3.10
575.00	-1.10	600.00	-2.80	550.00	2.00	550.00	1.30	600.00	-1.90	550.00	1.90	575.00	-4.00
600.00	-8.50	625.00	-2.10	625.00	-3.10	625.00	-2.60	600.00	-3.00	575.00	-1.90	600.00	-4.00
650.00	-1.70	650.00	-2.10	650.00	-3.10	650.00	-2.60	625.00	-3.00	600.00	-2.10	625.00	-2.50

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 740612

SVY 103

TIME 1000

340.00 14.60

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PROFILE A

DATE 621023

SVY 5

TIME 1200

460.00 14.40

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DATE 621108

SVY 7

TIME 1200

415.00 14.60

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DATE 621210

SVY A

TIME 1200

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DATE 630115

SVY 9

TIME 1200

415.00 14.60

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LUNG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE 630121	DATE 630122	DATE 630220	DATE 630224	DATE 630304	DATE 630304	DATE 630311
SRVY 10	SRVY 13	SRVY 14	SRVY 15	SRVY 16	SRVY 16	SRVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
554.00 7.10	400.00 13.00	471.00 9.70	409.00 14.10	551.00 7.60	450.00 12.20	
574.00 4.70	410.00 12.30	501.00 8.70	422.00 12.40	575.00 6.20	470.00 9.40	
600.00 1.60	420.00 12.70	551.00 7.40	458.00 12.30	600.00 4.20	501.00 6.20	
651.00 -1.70	458.00 5.30	583.00 4.90	474.00 9.50	624.00 3.00	525.00 7.50	
	500.00 8.50	471.00 9.50	501.00 8.20	651.00 1.90	551.00 7.10	
	525.00 8.50	471.00 9.50	501.00 8.20	651.00 1.90	551.00 7.10	
	542.00 8.30	471.00 9.50	501.00 8.20	651.00 1.90	551.00 7.10	
	552.00 6.80	471.00 9.50	501.00 8.20	651.00 1.90	551.00 7.10	
	601.00 2.40	525.00 8.00	577.00 4.10	701.00 -1.20	604.00 5.50	
	625.00 .50	577.00 5.80	613.00 4.50		651.00 .40	
	646.00 -3.70	602.00 2.60	650.00 1.50		674.00 -1.50	
		627.00 .60	677.00 .40			
		651.00 -.60	702.00 -.60			

PROFILE 6

DATE 630319	DATE 630328	DATE 630613	DATE 630625	DATE 630711	DATE 630723
SRVY 1A	SRVY 21	SRVY 22	SRVY 23	SRVY 24	SRVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
552.00 7.10	400.00 13.00	450.00 10.70	450.00 10.80	550.00 7.60	375.00 14.50
577.00 5.90	410.00 12.60	501.00 7.80	473.00 6.90	575.00 6.50	401.00 14.10
601.00 2.60	420.00 12.00	550.00 7.30	501.00 7.80	600.00 4.70	425.00 13.40
625.00 1.00	450.00 12.80	600.00 7.20	525.00 7.30	625.00 1.20	451.00 10.50
677.00 -1.00	470.00 8.00	601.00 7.80	551.00 7.60	651.00 -.20	472.00 8.80
	500.00 7.80	651.00 7.60	575.00 7.50	677.00 -1.40	501.00 7.80
	572.00 6.40	651.00 7.60	624.00 1.20		550.00 6.00
	583.00 6.50	671.00 6.70	624.00 1.20		575.00 6.20
	601.00 4.00	705.00 15.90	635.00 .20		625.00 6.40
	625.00 0.00	748.00 5.00	651.00 -1.70		645.00 2.80
	677.00 -2.10	800.00 3.00	651.00 -1.70		674.00 -1.70
		825.00 2.00			
		850.00 -1.50			
		875.00 -1.70			

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE 610000	DATE 610020	DATE 610040	DATE 610060	DATE 610080	DATE 610100	DATE 610120	DATE 610140	DATE 610160	DATE 610180	DATE 610200	DATE 610220	DATE 610240	DATE 610260	DATE 610280	DATE 610300
SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
550.00	12-30	425.00	10-20	353.00	16-50	334.00	14-40	352.00	16-30	374.00	18-20	378.00	18-10	374.00	17-70
576.00	10-90	482.00	17-40	478.00	13-40	353.00	18-20	378.00	17-70	400.00	14-40	400.00	13-20	374.00	12-70
621.00	1-80	476.00	9-20	403.00	13-60	378.00	14-00	400.00	13-20	429.00	10-00	429.00	9-40	400.00	8-50
652.00	-1-90	503.00	7-90	403.00	13-70	431.00	11-60	400.00	13-40	429.00	11-70	455.00	9-40	425.00	8-20
		400.00	13-30	528.00	10-30	478.00	7-50	429.00	11-70	455.00	10-50	481.00	8-20	474.00	7-90
		411.00	12-10	528.00	8-00	480.00	7-20	458.00	10-50	481.00	7-00	505.00	7-00	480.00	6-90
		426.00	12-20	575.00	5-90	500.00	4-00	500.00	7-00	500.00	7-00	500.00	7-00	480.00	6-80
		476.00	8-90	602.00	3-00	532.00	4-00	530.00	4-70	530.00	4-70	530.00	4-70	510.00	4-40
		521.00	7-00	627.00	1-00	585.00	8-20	585.00	8-20	585.00	8-20	585.00	8-20	575.00	8-10
		552.00	4-30			605.00	2-50	605.00	2-50	605.00	2-50	605.00	2-50	592.00	2-20
		577.00	4-20					606.00	2-50	606.00	2-50	606.00	2-50	592.00	2-10
		602.00	6-20					631.00	-1-00	631.00	-1-00	631.00	-1-00	624.00	-1-50
		652.00	1-30											624.00	-2-40
		676.00	-0-20											624.00	-3-50
		702.00	-1-00											650.00	-4-50
														676.00	-5-50
														702.00	-6-50

LONG BEACH ISLAND N-J
DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
660922	50	16:20	670114	51	16:30	670505	52	16:40	670920	53	16:50	671218	54	17:00	680117	55	17:10	680227	56	17:20	680327	57	17:30	680427	58	17:40	680527	59	17:50	680627	60	18:00	680727	61	18:10	680827	62	18:20	680927	63	18:30	681027	64	18:40	681127	65	18:50	681227	66	19:00	681327	67	19:10	681427	68	19:20	681527	69	19:30	681627	70	19:40	681727	71	19:50	681827	72	20:00	681927	73	20:10	682027	74	20:20	682127	75	20:30	682227	76	20:40	682327	77	20:50	682427	78	21:00	682527	79	21:10	682627	80	21:20	682727	81	21:30	682827	82	21:40	682927	83	21:50	683027	84	22:00	683127	85	22:10	683227	86	22:20	683327	87	22:30	683427	88	22:40	683527	89	22:50	683627	90	23:00	683727	91	23:10	683827	92	23:20	683927	93	23:30	684027	94	23:40	684127	95	23:50	684227	96	24:00	684327	97	24:10	684427	98	24:20	684527	99	24:30	684627	100	24:40	684727	101	24:50	684827	102	25:00	684927	103	25:10	685027	104	25:20	685127	105	25:30	685227	106	25:40	685327	107	25:50	685427	108	26:00	685527	109	26:10	685627	110	26:20	685727	111	26:30	685827	112	26:40	685927	113	26:50	686027	114	27:00	686127	115	27:10	686227	116	27:20	686327	117	27:30	686427	118	27:40	686527	119	27:50	686627	120	28:00	686727	121	28:10	686827	122	28:20	686927	123	28:30	687027	124	28:40	687127	125	28:50	687227	126	29:00	687327	127	29:10	687427	128	29:20	687527	129	29:30	687627	130	29:40	687727	131	29:50	687827	132	30:00	687927	133	30:10	688027	134	30:20	688127	135	30:30	688227	136	30:40	688327	137	30:50	688427	138	31:00	688527	139	31:10	688627	140	31:20	688727	141	31:30	688827	142	31:40	688927	143	31:50	689027	144	32:00	689127	145	32:10	689227	146	32:20	689327	147	32:30	689427	148	32:40	689527	149	32:50	689627	150	33:00	689727	151	33:10	689827	152	33:20	689927	153	33:30	690027	154	33:40	690127	155	33:50	690227	156	34:00	690327	157	34:10	690427	158	34:20	690527	159	34:30	690627	160	34:40	690727	161	34:50	690827	162	35:00	690927	163	35:10	691027	164	35:20	691127	165	35:30	691227	166	35:40	691327	167	35:50	691427	168	36:00	691527	169	36:10	691627	170	36:20	691727	171	36:30	691827	172	36:40	691927	173	36:50	692027	174	37:00	692127	175	37:10	692227	176	37:20	692327	177	37:30	692427	178	37:40	692527	179	37:50	692627	180	38:00	692727	181	38:10	692827	182	38:20	692927	183	38:30	693027	184	38:40	693127	185	38:50	693227	186	39:00	693327	187	39:10	693427	188	39:20	693527	189	39:30	693627	190	39:40	693727	191	39:50	693827	192	40:00	693927	193	40:10	694027	194	40:20	694127	195	40:30	694227	196	40:40	694327	197	40:50	694427	198	41:00	694527	199	41:10	694627	200	41:20	694727	201	41:30	694827	202	41:40	694927	203	41:50	695027	204	42:00	695127	205	42:10	695227	206	42:20	695327	207	42:30	695427	208	42:40	695527	209	42:50	695627	210	43:00	695727	211	43:10	695827	212	43:20	695927	213	43:30	696027	214	43:40	696127	215	43:50	696227	216	44:00	696327	217	44:10	696427	218	44:20	696527	219	44:30	696627	220	44:40	696727	221	44:50	696827	222	45:00	696927	223	45:10	697027	224	45:20	697127	225	45:30	697227	226	45:40	697327	227	45:50	697427	228	46:00	697527	229	46:10	697627	230	46:20	697727	231	46:30	697827	232	46:40	697927	233	46:50	698027	234	47:00	698127	235	47:10	698227	236	47:20	698327	237	47:30	698427	238	47:40	698527	239	47:50	698627	240	48:00	698727	241	48:10	698827	242	48:20	698927	243	48:30	699027	244	48:40	699127	245	48:50	699227	246	49:00	699327	247	49:10	699427	248	49:20	699527	249	49:30	699627	250	49:40	699727	251	49:50	699827	252	50:00	699927	253	50:10	700027	254	50:20	700127	255	50:30	700227	256	50:40	700327	257	50:50	700427	258	51:00	700527	259	51:10	700627	260	51:20	700727	261	51:30	700827	262	51:40	700927	263	51:50	701027	264	52:00	701127	265	52:10	701227	266	52:20	701327	267	52:30	701427	268	52:40	701527	269	52:50	701627	270	53:00	701727	271	53:10	701827	272	53:20	701927	273	53:30	702027	274	53:40	702127	275	53:50	702227	276	54:00	702327	277	54:10	702427	278	54:20	702527	279	54:30	702627	280	54:40	702727	281	54:50	702827	282	55:00	702927	283	55:10	703027	284	55:20	703127	285	55:30	703227	286	55:40	703327	287	55:50	703427	288	56:00	703527	289	56:10	703627	290	56:20	703727	291	56:30	703827	292	56:40	703927	293	56:50	704027	294	57:00	704127	295	57:10	704227	296	57:20	704327	297	57:30	704427	298	57:40	704527	299	57:50	704627	300	58:00	704727	301	58:10	704827	302	58:20	704927	303	58:30	705027	304	58:40	705127	305	58:50	705227	306	59:00	705327	307	59:10	705427	308	59:20	705527	309	59:30	705627	310	59:40	705727	311	59:50	705827	312	60:00	705927	313	60:10	706027	314	60:20	706127	315	60:30	706227	316	60:40	706327	317	60:50	706427	318	61:00	706527	319	61:10	706627	320	61:20	706727	321	61:30	706827	322	61:40	706927	323	61:50	707027	324	62:00	707127	325	62:10	707227	326	62:20	707327	327	62:30	707427	328	62:40	707527	329	62:50	707627	330	63:00	707727	331	63:10	707827	332	63:20	707927	333	63:30	708027	334	63:40	708127	335	63:50	708227	336	64:00	708327	337	64:10	708427	338	64:20	708527	339	64:30	708627	340	64:40	708727	341	64:50	708827	342	65:00	708927	343	65:10	709027	344	65:20	709127	345	65:30	709227	346	65:40	709327	347	65:50	709427	348	66:00	709527	349	66:10	709627	350	66:20	709727	351	66:30	709827	352	66:40	709927	353	66:50	710027	354	67:00	710127	355	67:10	710227	356	67:20	710327	357	67:30	710427	358	67:40	710527	359	67:50	710627	360	68:00	710727	361	68:10	710827	362	68:20	710927	363	68:30	711027	364	68:40	711127	365	68:50	711227	366	69:00	711327	367	69:10	711427	368	69:20	711527	369	69:30	711627	370	69:40	711727	371	69:50	711827	372	70:00	711927	373	70:10	712027	374	70:20	712127	375	70:30	712227	376	70:40	712327	377	70:50	712427	378	71:00	712527	379	71:10	712627	380	71:20	712727	381	71:30	712827	382	71:40	712927	383	71:50	713027	384	72:00	713127	385	72:10	713227	386	72:20	713327	387	72:30	713427	388	72:40	713527	389	72:50	713627	390	73:00	713727	391	73:10	713827	392	73:20	713927	393	73:30	714027	394	73:40	714127	395	73:50	714227	396	74:00	714327	397	74:10	714427	398	74:20	714527	399	74:30	714627	400	74:40	714727	401	74:50	714827	402	75:00	714927	403	75:10	715027	404	75:20	715127	405	75:30	715227	406	75:40	715327	407	75:50	715427	408	76:00	715527	409	76:10	715627	410	76:20	715727	411	76:30	715827	412	76:40	715927	413	76:50	716027	414	77:00	716127	415	77:10	716227	416	77:20	716327	417	77:30	716427	418	77:40	716527	419	77:50	716627	420	78:00	716727	421	78:10	716827	422	78:20	716927	423	78:30	717027	424	78:40	717127	425	78:50	717227	426	79:00	717327	427	79:10	717427	428	79:20	717527	429	79:30	717627	430	79:40	717727	431	79:50	717827	432	80:00	717927	433	80:10	718027	434	80:20	718127	435	80:30	718227	436	80:40	718327	437	80:50	718427	438	81:00	718527	439	81:10	718627	440	81:20	718727	441	81:30	718827	442	81:40	718927	443	81:50	719027	444	82:00	719127	445	82:10	719227	446	82:20	719327	447	82:30	719427	448	82:40	719527	449	82:50	719627	450	83:00	719727	451	83:10	719827	452	83:20	719927	453	83:30	720027	454	83:40	720127	455	83:50	720227	456	84:00	720327	457	84:10	720427	458	84:20	720527	459	84:30	720627	460	84:40	720727	461	84:50	720827	462	85:00

LONG REACH ISLAND N.J.
 DATUM IS NSL MEASUREMENT IS FT.

PROFILE 6

DATE 690924	DATE 691020	DATE 691118	DATE 691218	DATE 700120	DATE 700214	DATE 700319	DATE 700517
SVY 67	SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
365.00	365.00	365.00	365.00	365.00	365.00	365.00	364.00
400.00	400.00	381.00	381.00	381.00	400.00	381.00	420.00
420.00	420.00	405.00	405.00	405.00	425.00	425.00	450.00
450.00	450.00	420.00	420.00	420.00	465.00	465.00	480.00
470.00	470.00	440.00	440.00	440.00	485.00	485.00	500.00
500.00	500.00	460.00	460.00	460.00	500.00	500.00	520.00
519.00	519.00	480.00	480.00	480.00	550.00	550.00	560.00
548.00	548.00	500.00	500.00	500.00	600.00	600.00	600.00
575.00	575.00	520.00	520.00	520.00	615.00	615.00	620.00
600.00	600.00	540.00	540.00	540.00	625.00	625.00	630.00
625.00	625.00	560.00	560.00	560.00	650.00	650.00	650.00
650.00	650.00	580.00	580.00	580.00	675.00	675.00	680.00
675.00	675.00	600.00	600.00	600.00	700.00	700.00	700.00
700.00	700.00	620.00	620.00	620.00	745.00	745.00	745.00
		645.00	645.00	645.00			
		675.00	675.00	675.00			
		700.00	700.00	700.00			
		725.00	725.00	725.00			
		750.00	750.00	750.00			
		775.00	775.00	775.00			
		800.00	800.00	800.00			

PROFILE 6

DATE 700828	DATE 701012	DATE 701207	DATE 710124	DATE 710127	DATE 710228	DATE 710328	DATE 711028
SVY 75	SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
381.00	381.00	381.00	381.00	381.00	375.00	375.00	385.00
392.00	392.00	405.00	405.00	405.00	400.00	400.00	400.00
400.00	400.00	415.00	415.00	415.00	425.00	425.00	435.00
441.00	441.00	440.00	440.00	440.00	435.00	435.00	445.00
500.00	500.00	450.00	450.00	450.00	440.00	440.00	450.00
550.00	550.00	475.00	475.00	475.00	460.00	460.00	470.00
600.00	600.00	490.00	490.00	490.00	480.00	480.00	485.00
650.00	650.00	510.00	510.00	510.00	500.00	500.00	500.00
700.00	700.00	530.00	530.00	530.00	520.00	520.00	520.00
750.00	750.00	550.00	550.00	550.00	540.00	540.00	540.00
780.00	780.00	570.00	570.00	570.00	560.00	560.00	560.00
800.00	800.00	590.00	590.00	590.00	580.00	580.00	580.00
830.00	830.00	610.00	610.00	610.00	600.00	600.00	600.00
		630.00	630.00	630.00	620.00	620.00	620.00
		650.00	650.00	650.00	640.00	640.00	640.00
		675.00	675.00	675.00	660.00	660.00	660.00
		700.00	700.00	700.00	680.00	680.00	680.00
		725.00	725.00	725.00	700.00	700.00	700.00
		750.00	750.00	750.00	720.00	720.00	720.00
		775.00	775.00	775.00	740.00	740.00	740.00
		800.00	800.00	800.00	760.00	760.00	760.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE #

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
365.00	15.70	365.00	15.90	365.00	15.70	365.00	15.90	365.00	15.80	365.00	15.70	365.00	15.70
375.00	15.70	400.00	17.10	400.00	16.40	382.00	17.50	380.00	17.10	400.00	17.20	381.00	17.20
385.00	16.70	420.00	18.40	400.00	18.80	400.00	17.50	400.00	18.20	430.00	18.00	410.00	18.00
405.00	17.40	440.00	19.90	450.00	13.10	425.00	17.70	430.00	16.30	471.00	11.00	430.00	17.50
420.00	18.40	480.00	10.10	500.00	9.20	439.00	16.30	450.00	12.00	500.00	9.60	445.00	16.90
440.00	19.40	500.00	9.40	550.00	10.00	440.00	13.90	500.00	9.20	550.00	8.20	465.00	11.70
450.00	19.30	550.00	9.30	562.00	9.90	450.00	12.60	550.00	9.00	582.00	7.00	500.00	8.60
500.00	9.20	570.00	9.40	600.00	8.10	500.00	9.30	575.00	8.00	600.00	5.00	550.00	8.70
550.00	9.40	600.00	5.40	650.00	-8.00	530.00	9.40	600.00	8.70	625.00	2.50	600.00	8.10
575.00	9.40	625.00	2.40	700.00	-1.40	580.00	7.50	670.00	3.20	650.00	4.60	650.00	2.50
600.00	7.40	700.00	4.60	700.00	-1.40	610.00	7.40	670.00	3.20	675.00	2.30	675.00	2.30
650.00	-1.30	725.00	-2.50	725.00	-2.50	675.00	-2.80	675.00	-3.00	675.00	-2.30	670.00	-3.50

PROFILE 6

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
365.00	15.70	365.00	15.80	365.00	15.90	365.00	15.80	365.00	15.70	365.00	15.80	365.00	15.70
380.00	17.20	400.00	18.00	400.00	17.50	381.00	17.10	380.00	17.30	400.00	17.20	400.00	17.20
401.00	18.10	425.00	17.20	400.00	18.40	400.00	18.00	400.00	18.10	420.00	18.00	420.00	18.10
427.00	18.40	450.00	12.10	420.00	12.60	427.00	12.60	422.00	12.90	420.00	12.00	420.00	12.00
437.00	18.60	480.00	10.00	480.00	13.70	460.00	11.50	450.00	12.80	450.00	12.20	450.00	12.50
461.00	11.80	550.00	9.40	550.00	12.60	500.00	10.40	500.00	9.70	500.00	10.00	497.00	9.00
500.00	10.20	560.00	8.60	500.00	10.50	531.00	10.00	550.00	7.50	550.00	8.50	500.00	8.50
510.00	8.20	600.00	8.10	550.00	8.10	550.00	8.20	575.00	5.50	600.00	2.00	550.00	9.50
520.00	8.20	650.00	-2.20	580.00	6.70	575.00	4.70	600.00	3.30	650.00	-3.60	575.00	5.00
550.00	5.30	700.00	-2.10	650.00	0.40	600.00	0.40	625.00	0.00	650.00	-1.00	600.00	0.50
600.00	-3.70	700.00	-1.60	700.00	-1.60	650.00	-1.60	650.00	-2.70	650.00	-1.20	610.00	-1.20
620.00	-3.20	700.00	-1.60	700.00	-1.60	650.00	-2.30	650.00	-2.70	650.00	-1.20	610.00	-1.20

LONG BEACH ISLAND N.J.
DATUM IS

PROFILE 7

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
553.00	5.00		400.00	13.30		475.00	8.50		348.00	16.30	475.00	8.30	320.00	11.00
601.00	7.00		525.00	7.90		525.00	7.90		357.00	13.20	501.00	7.60	351.00	15.50
636.00	-1.40		400.00	4.50		576.00	4.30		371.00	12.40	525.00	7.40	359.00	13.20
			400.00	8.60		601.00	3.00		401.00	13.60	552.00	6.40	364.00	12.40
			526.00	7.90		650.00	0.00		426.00	12.20	520.00	6.70	381.00	13.40
			601.00	0.00		651.00	1.90		461.00	11.50	651.00	1.90	400.00	9.60
			661.00	2.20		651.00	1.90		461.00	11.50	651.00	1.90	400.00	9.60
			651.00	-1.20		651.00	1.90		476.00	11.00	651.00	1.90	400.00	9.60
			676.00	-1.00		676.00	1.90		502.00	7.90	676.00	1.90	400.00	9.60
						526.00	7.60		526.00	7.90	676.00	1.90	400.00	9.60
						551.00	6.50		552.00	6.50				
						577.00	4.40		574.00	4.80				
						601.00	2.30		602.00	4.40				
						626.00	7.0		612.00	4.50				
						651.00	-4.0		627.00	3.10				
						676.00	-1.00		651.00	1.20				
									679.00	1.0				
									702.00	-1.00				
									727.00	-2.00				

PROFILE 7

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
551.00	6.00		526.00	7.20		400.00	13.00		0.00	5.50	502.00	7.60	450.00	11.00
575.00	5.30		550.00	6.50		451.00	11.00		150.00	6.00	525.00	6.30	475.00	8.00
600.00	5.00		575.00	6.10		476.00	8.40		200.00	7.50	551.00	5.60	502.00	7.70
650.00	2.40		546.00	5.10		501.00	7.50		250.00	7.40	601.00	0.00	526.00	7.40
675.00	0.30		601.00	3.80		520.00	4.30		300.00	6.20	651.00	-1.20	550.00	5.00
700.00	0.50		627.00	1.90		571.00	6.40		351.00	15.50			601.00	7.40
726.00	-2.20		676.00	-1.10		590.00	6.30		370.00	13.00			601.00	-4.00
						602.00	0.70		400.00	12.90				
						626.00	1.70		426.00	11.50				
						651.00	0.00		451.00	11.20				
						676.00	-1.00		476.00	8.20				
									526.00	6.90				
									552.00	5.70				
									602.00	1.40				
									677.00	-1.40				

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 7

DATE TIME	SRVY 1200	DATE 640012 TIME	SRVY 1200	DATE 640015 TIME	SRVY 1200	DATE 640027 TIME	SRVY 1200	DATE 640031 TIME	SRVY 1200	DATE 640042 TIME	SRVY 1200	DATE 640049 TIME	SRVY 1200
-255.00	5.60	408.00	13.60	313.00	9.10	325.00	12.40	312.00	8.90	311.00	9.10	324.00	12.40
-229.00	5.90	428.00	11.50	326.00	12.70	351.00	16.50	324.00	12.10	327.00	17.50	325.00	16.70
-204.00	5.60	452.00	8.30	350.00	16.20	376.00	15.80	350.00	16.40	351.00	16.50	374.00	16.70
-177.00	5.60	478.00	7.20	377.00	15.80	401.00	14.20	376.00	16.50	377.00	16.30	400.00	16.00
-121.00	5.40	502.00	6.80	402.00	13.20	428.00	11.60	401.00	19.70	401.00	14.60	427.00	7.90
-84.00	5.10	527.00	9.20	428.00	14.30	452.00	9.40	428.00	17.00	452.00	11.00	451.00	7.60
-62.00	5.80	553.00	7.50	452.00	17.20	478.00	7.10	452.00	8.00	478.00	8.10	477.00	7.20
-22.00	5.50	650.00	8.30	503.00	6.80	502.00	7.10	552.00	6.00	478.00	7.40	526.00	8.50
96.00	5.70	528.00	8.70	503.00	6.80	553.00	7.80	575.00	6.90	501.00	8.20	552.00	1.60
189.00	5.00	553.00	5.70	577.00	6.20	603.00	2.80	577.00	5.10	527.00	8.50	552.00	8.00
249.00	7.50	629.00	5.70	629.00	6.20	629.00	5.50	628.00	6.60	603.00	4.30	603.00	1.80
300.00	8.20	628.00	5.20	628.00	5.20	653.00	-1.80	654.00	-2.40	603.00	-1.80	603.00	-1.80
313.00	9.10	675.00	8.50	675.00	8.20	704.00	8.20	704.00	8.20	704.00	8.20	704.00	8.20
325.00	13.00												
350.00	15.20												
371.00	15.30												
391.00	14.10												
401.00	13.60												
428.00	11.50												
437.00	11.20												
463.00	9.10												
483.00	8.10												
527.00	3.10												
574.00	2.00												
629.00	1.80												
655.00	8.00												
681.00	8.50												
688.00	-1.80												

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT JS FT

PROFILE 7

DATE SRVY TIME	661201 42 1200	DATE SRVY TIME	650119 43 1200	DATE SRVY TIME	650427 44 1200	DATE SRVY TIME	650907 45 1200	DATE SRVY TIME	651027 46 1200	DATE SRVY TIME	651222 47 1200	DATE SRVY TIME	640125 48 1200	DATE SRVY TIME	640121 49 1200
312+00	9+00	396+00	15+00	376+00	16+00	377+00	16+00	377+00	16+30	385+00	15+00	302+00	8+00	466+00	11+00
350+00	17+10	439+00	11+70	396+00	15+20	391+00	15+10	401+00	16+00	401+00	13+00	362+00	12+00	466+00	11+00
376+00	18+00	477+00	5+00	437+00	9+00	456+00	11+00	451+00	8+00	451+00	13+00	372+00	15+00	465+00	11+00
425+00	11+50	507+00	6+00	476+00	7+00	493+00	8+70	471+00	9+00	464+00	8+70	425+00	15+10	501+00	11+00
460+00	9+00	529+00	3+00	528+00	4+10	527+00	2+00	502+00	6+20	476+00	6+90	425+00	7+00	550+00	11+00
476+00	8+00	628+00	3+00	603+00	4+00	552+00	1+10	502+00	6+20	512+00	6+90	501+00	4+90	577+00	11+00
501+00	5+00	653+00	1+50	628+00	2+50	578+00	1+70	553+00	1+10	553+00	2+50	527+00	2+00	591+00	11+00
526+00	4+00	653+00	1+50	653+00	1+50	626+00	1+90	602+00	1+00	626+00	1+00	576+00	4+00	591+00	11+00
602+00	6+00	602+00	6+00	602+00	6+00	602+00	6+00	602+00	6+00	602+00	6+00	602+00	6+00	602+00	6+00
653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00

PROFILE 7

DATE SRVY TIME	640022 50 1200	DATE SRVY TIME	670505 52 1200	DATE SRVY TIME	670920 54 1200	DATE SRVY TIME	671218 55 1200	DATE SRVY TIME	680117 56 1200	DATE SRVY TIME	640027 57 1200	DATE SRVY TIME	640121 58 1200
004+00	10+50	393+00	15+70	390+00	15+00	340+00	16+00	359+00	16+10	384+00	16+00	358+00	15+00
425+00	10+00	407+00	14+90	382+00	15+00	380+00	16+00	382+00	16+20	418+00	14+00	376+00	16+00
451+00	12+00	426+00	14+50	400+00	14+60	401+00	15+30	410+00	14+00	405+00	14+10	385+00	15+00
476+00	12+00	452+00	12+20	426+00	14+30	425+00	15+10	432+00	14+00	481+00	14+50	420+00	14+00
501+00	10+70	472+00	11+50	450+00	12+10	450+00	13+10	468+00	11+00	498+00	14+50	449+00	13+00
511+00	7+00	486+00	11+70	471+00	11+00	500+00	8+30	507+00	7+70	550+00	10+10	476+00	10+10
551+00	4+50	488+00	9+20	501+00	8+20	526+00	7+90	525+00	5+70	598+00	6+10	500+00	6+50
602+00	0+00	502+00	7+00	531+00	5+00	551+00	7+20	582+00	3+10	625+00	3+00	578+00	2+10
627+00	0+00	527+00	6+30	550+00	2+00	600+00	3+00	610+00	3+10	635+00	1+30	578+00	2+10
653+00	0+00	572+00	6+00	600+00	2+00	640+00	3+10	601+00	2+00	645+00	1+00	590+00	2+10
653+00	0+00	602+00	6+00	651+00	3+00	652+00	3+00	651+00	2+00	650+00	2+00	650+00	2+00
653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00	653+00	1+00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 7

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00
60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00
70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00

PROFILE 7

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00
60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00
70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE A

DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200					
195+00	62092A	1	1200	348+00	621011	4+00	1200	9+50	621029	9+00	1200	376+00	62110A	7	1200	365+00	4+00	621210	8+00	1200	4+00	621115	9	1200
237+00	62092A	1	1200	403+00	621011	11+00	1200	11+00	621029	9+00	1200	376+00	62110A	7	1200	383+00	12+00	621210	8+00	1200	50+00	621115	9	1200
273+00	62092A	1	1200	403+00	621011	9+30	1200	11+00	621029	9+00	1200	376+00	62110A	7	1200	391+00	10+70	621210	11+00	1200	100+00	621115	9	1200
295+00	62092A	1	1200	412+00	621011	7+80	1200	11+00	621029	3+60	1200	415+00	62110A	7	1200	414+00	10+80	621210	10+80	1200	200+00	621115	9	1200
305+00	62092A	1	1200	412+00	621011	6+30	1200	11+00	621029	6+30	1200	419+00	62110A	7	1200	470+00	8+20	621210	8+20	1200	240+00	621115	9	1200
385+00	62092A	1	1200	444+00	621011	9+00	1200	11+00	621029	6+30	1200	404+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	270+00	621115	9	1200
375+00	62092A	1	1200	458+00	621011	9+00	1200	11+00	621029	6+30	1200	404+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	301+00	621115	9	1200
401+00	62092A	1	1200	468+00	621011	7+10	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	342+00	621115	9	1200
401+00	62092A	1	1200	468+00	621011	6+30	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
468+00	62092A	1	1200	468+00	621011	2+80	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
493+00	62092A	1	1200	493+00	621011	1+50	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
517+00	62092A	1	1200	555+00	621011	1+80	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
504+00	62092A	1	1200	540+00	621011	1+10	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
570+00	62092A	1	1200	570+00	621011	1+10	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
630+00	62092A	1	1200	630+00	621011	1+10	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200
650+00	62092A	1	1200	650+00	621011	1+10	1200	11+00	621029	6+30	1200	412+00	62110A	7	1200	468+00	5+90	621210	5+90	1200	354+00	621115	9	1200

PROFILE A

DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200	DATE	SRVY	TIME	1200					
200+00	610121	1	1200	455+00	63012A	7+80	1200	401+00	630212	10+90	1200	471+00	63022A	15	1200	454+00	7+90	630304	7+90	1200	412+00	630111	10+10	1200
280+00	610121	1	1200	478+00	63012A	5+50	1200	412+00	630212	10+20	1200	452+00	63022A	15	1200	501+00	5+50	630304	6+70	1200	421+00	630111	9+20	1200
289+00	610121	1	1200	482+00	63012A	6+80	1200	424+00	630212	9+80	1200	452+00	63022A	15	1200	478+00	6+00	630304	6+00	1200	484+00	630111	7+20	1200
350+00	610121	1	1200	562+00	63012A	1+10	1200	465+00	630212	7+70	1200	475+00	63022A	15	1200	526+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
383+00	610121	1	1200	562+00	63012A	7+70	1200	475+00	630212	5+10	1200	477+00	63022A	15	1200	526+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
443+00	610121	1	1200	562+00	63012A	5+80	1200	475+00	630212	5+10	1200	477+00	63022A	15	1200	526+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
481+00	610121	1	1200	561+00	63012A	0+80	1200	501+00	630212	0+20	1200	601+00	63022A	15	1200	601+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
481+00	610121	1	1200	561+00	63012A	1+90	1200	551+00	630212	1+20	1200	601+00	63022A	15	1200	601+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
506+00	610121	1	1200	551+00	63012A	0+70	1200	551+00	630212	1+20	1200	601+00	63022A	15	1200	601+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200
551+00	610121	1	1200	551+00	63012A	0+70	1200	551+00	630212	1+20	1200	601+00	63022A	15	1200	601+00	1+90	630304	1+90	1200	551+00	630111	4+20	1200

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 0

DATE 610319	DATE 610324	DATE 610404	DATE 610528	DATE 610613	DATE 610625	DATE 610711	DATE 610723
SVY 1A	SVY 1Q	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
478.00	401.00	407.00	5.10	440.00	7.60	401.00	11.50
500.00	370.00	429.00	5.30	475.00	5.60	423.00	9.30
520.00	425.00	450.00	161.00	575.00	5.60	423.00	7.50
562.00	475.00	476.00	151.00	525.00	3.30	471.00	4.00
576.00	410.00	501.00	2.90	525.00	3.30	471.00	4.00
	507.00	410.00	8.20	551.00	1.80	524.00	1.00
	527.00	2.00	301.00	571.00	1.80	524.00	1.00
	551.00	-2.70	325.00	601.00	-2.60	552.00	-2.50
		577.00	350.00	627.00	-2.60	552.00	-2.50
			376.00	627.00	-1.60	601.00	-1.20
			400.00	11.30			
			426.00	8.20			
			451.00	7.50			
			475.00	6.40			
			501.00	6.70			
			512.00	6.50			
			531.00	2.80			
			605.00	1.20			
			627.00	-1.20			

PROFILE 8

DATE 610806	DATE 610820	DATE 610904	DATE 610926	DATE 611010	DATE 611025	DATE 611115	DATE 611227
SVY 26	SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
475.00	6.50	401.00	11.50	375.00	13.60	428.00	7.40
501.00	1.00	425.00	7.20	450.00	9.00	452.00	6.20
520.00	1.00	450.00	7.60	475.00	7.40	478.00	5.20
528.00	-2.00	479.00	6.70	508.00	7.40	508.00	-2.30
		502.00	6.30	505.00	6.50	551.00	-2.30
		551.00	-2.00	555.00	5.00	551.00	-2.30
		602.00	1.50	580.00	6.10	581.00	4.50
		627.00	-2.50	581.00	2.90	581.00	4.50
				581.00	-2.90	624.00	7.40
						529.00	4.00
						604.00	1.30
						624.00	-1.20

LONG BEACH ISLAND No. 3
 DATUM IS MSL MEASUREMENT IS FT

PROFILE B

DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME
641121	641119	650427	650907	651027	651222	660029	660023	660025	660029	660023	660023
3d	43	36	46	46	47	40	39	39	40	40	41
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
-255.00	341.00	326.00	353.00	370.00	350.00	367.00	350.00	329.00	370.00	403.00	351.00
-270.00	401.00	350.00	379.00	375.00	370.00	370.00	370.00	370.00	403.00	403.00	370.00
-270.00	476.00	350.00	373.00	405.00	400.00	405.00	405.00	405.00	476.00	476.00	405.00
-102.00	501.00	403.00	403.00	429.00	429.00	429.00	429.00	429.00	501.00	501.00	429.00
-103.00	525.00	451.00	451.00	460.00	460.00	460.00	460.00	460.00	525.00	525.00	460.00
-53.00	570.00	471.00	471.00	502.00	502.00	502.00	502.00	502.00	570.00	570.00	502.00
-23.00	605.00	527.00	527.00	531.00	531.00	531.00	531.00	531.00	605.00	605.00	531.00
98.00	628.00	585.00	585.00	585.00	585.00	585.00	585.00	585.00	628.00	628.00	585.00
190.00	628.00	602.00	602.00	601.00	601.00	601.00	601.00	601.00	628.00	628.00	601.00
250.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
325.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
350.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
375.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
450.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
471.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
503.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
532.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
578.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
629.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00

PROFILE B

DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME
641201	650119	650427	650907	651027	651222	660029	660023	660025	660029	660023	660023
4d	43	36	46	46	47	40	39	39	40	40	41
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
366.00	341.00	345.00	381.00	385.00	378.00	390.00	378.00	378.00	390.00	403.00	366.00
390.00	401.00	461.00	401.00	468.00	400.00	468.00	400.00	468.00	400.00	468.00	400.00
420.00	476.00	477.00	476.00	491.00	481.00	481.00	481.00	481.00	476.00	476.00	481.00
451.00	501.00	502.00	501.00	501.00	501.00	501.00	501.00	501.00	501.00	501.00	501.00
477.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00
503.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00
520.00	605.00	602.00	602.00	602.00	602.00	602.00	602.00	602.00	602.00	602.00	602.00
552.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
603.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00
628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00	628.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE A

DATE 660222	DATE 670116	DATE 670505	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680427
SVV 50	SVV 51	SVV 52	SVV 54	SVV 55	SVV 56	SVV 57	SVV 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
372.00	351.00	340.00	339.00	351.00	358.00	317.00	317.00
395.00	378.00	365.00	361.00	360.00	375.00	359.00	345.00
400.00	380.00	360.00	393.00	376.00	390.00	376.00	370.00
426.00	400.00	390.00	400.00	397.00	400.00	390.00	390.00
478.00	426.00	410.00	426.00	451.00	449.00	449.00	449.00
501.00	451.00	450.00	451.00	500.00	498.00	490.00	490.00
551.00	501.00	500.00	476.00	481.00	513.00	470.00	537.00
601.00	551.00	500.00	525.00	552.00	570.00	522.00	550.00
	601.00	500.00	577.00	600.00	590.00	575.00	600.00
		500.00		632.00	580.00		
						570.00	

PROFILE B

DATE 681009	DATE 681023	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690309	DATE 690428
SVV 59	SVV 60	SVV 61	SVV 62	SVV 63	SVV 64	SVV 65	SVV 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
305.00	305.00	302.00	350.00	357.00	357.00	358.00	357.00
360.00	360.00	355.00	377.00	375.00	375.00	375.00	370.00
375.00	375.00	377.00	390.00	393.00	390.00	390.00	390.00
400.00	400.00	390.00	400.00	425.00	425.00	420.00	450.00
450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00
500.00	500.00	500.00	500.00	500.00	475.00	470.00	520.00
525.00	525.00	500.00	525.00	510.00	500.00	500.00	500.00
575.00	575.00	500.00	600.00	575.00	560.00	560.00	560.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
625.00	625.00	600.00	615.00	615.00	600.00	600.00	600.00
650.00	650.00	600.00					

LONG REACH ISLAND N.W.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE B

DATE SRVY TIME	60924 57 1200	DATE SRVY TIME	60920 5A 1200	DATE SRVY TIME	60918 6A 1200	DATE SRVY TIME	60916 7A 1200	DATE SRVY TIME	70010 7I 1200	DATE SRVY TIME	70012 8 1200	DATE SRVY TIME	70024 8 1200	DATE SRVY TIME	70030 8 1200	DATE SRVY TIME	700319 8 1200	DATE SRVY TIME	700521 8 1200
317.00	12.10	330.00	16.10	317.00	12.40	317.00	12.70	317.00	12.70	317.00	12.70	317.00	12.60	318.00	13.00	318.00	13.00	328.00	12.90
345.00	17.20	350.00	16.50	335.00	16.40	330.00	16.50	332.00	16.30	333.00	16.30	333.00	15.50	335.00	16.50	335.00	16.50	362.00	17.50
368.00	18.30	370.00	16.10	350.00	16.60	350.00	16.60	350.00	17.10	350.00	17.10	350.00	17.00	362.00	16.40	362.00	16.40	376.00	17.50
378.00	18.40	380.00	10.60	371.00	16.30	371.00	15.40	369.00	16.40	367.00	16.40	367.00	16.70	370.00	16.60	370.00	16.60	397.00	17.40
400.00	6.00	400.00	8.20	381.00	11.00	379.00	11.40	388.00	10.00	384.00	10.40	384.00	10.40	379.00	11.90	379.00	11.90	404.00	5.70
425.00	6.90	425.00	6.80	400.00	6.50	400.00	6.50	400.00	6.60	400.00	6.60	400.00	6.70	400.00	6.80	400.00	6.80	478.00	5.50
450.00	5.70	450.00	6.50	450.00	5.20	450.00	5.20	450.00	4.10	450.00	4.10	450.00	4.90	450.00	5.00	450.00	5.00	500.00	5.10
475.00	4.10	475.00	4.30	500.00	3.40	500.00	3.40	475.00	3.10	500.00	3.10	500.00	2.90	492.00	3.20	492.00	3.20	581.00	3.70
500.00	2.30	500.00	2.90	532.00	3.40	532.00	3.40	497.00	2.80	525.00	2.80	525.00	2.40	533.00	1.50	533.00	1.50	600.00	3.00
525.00	3.80	525.00	3.10	550.00	1.60	550.00	1.60	550.00	1.70	550.00	1.70	550.00	1.60	550.00	1.90	550.00	1.90	600.00	3.00
575.00	1.70	575.00	2.30	600.00	1.40	600.00	1.40	600.00	1.70	600.00	1.70	600.00	1.60	600.00	2.70	600.00	2.70	600.00	3.00
600.00	6.90	600.00	3.40	625.00	1.80	625.00	1.80	625.00	1.80	625.00	1.80	625.00	1.80	625.00	2.70	625.00	2.70	600.00	3.00
625.00	4.20	625.00	3.60	625.00	4.70	625.00	4.70	625.00	4.70	625.00	4.70	625.00	4.60	625.00	4.60	625.00	4.60	600.00	3.00
			3.60																
			3.60																

PROFILE B

DATE SRVY TIME	700R28 75 1200	DATE SRVY TIME	701012 76 1200	DATE SRVY TIME	701207 77 1200	DATE SRVY TIME	701218 7A 1200	DATE SRVY TIME	710112 79 1200	DATE SRVY TIME	710204 80 1200	DATE SRVY TIME	710204 81 1200	DATE SRVY TIME	710304 81 1200	DATE SRVY TIME	710304 81 1200	DATE SRVY TIME	710304 81 1200
317.00	12.40	317.00	12.70	317.00	12.70	317.00	12.70	317.00	12.70	317.00	12.70	317.00	12.70	317.00	12.80	317.00	12.80	317.00	12.80
330.00	16.20	330.00	17.10	330.00	13.90	325.00	14.40	333.00	16.20	332.00	16.20	333.00	16.00	333.00	16.00	333.00	16.00	330.00	16.50
350.00	16.80	350.00	17.30	340.00	9.00	348.00	16.30	348.00	15.00	348.00	15.00	348.00	15.00	348.00	15.00	348.00	15.00	340.00	17.20
378.00	12.90	362.00	17.70	450.00	5.30	360.00	16.60	380.00	11.10	380.00	12.50	378.00	13.10	378.00	13.10	378.00	13.10	375.00	17.20
380.00	10.10	370.00	16.50	500.00	3.10	375.00	13.50	400.00	9.30	400.00	8.60	380.00	11.70	380.00	11.70	380.00	11.70	380.00	13.10
400.00	8.50	378.00	16.60	550.00	3.30	385.00	11.20	403.00	4.50	450.00	4.30	400.00	4.70	400.00	4.70	400.00	4.70	400.00	9.10
450.00	5.80	380.00	9.90	600.00	1.90	400.00	4.00	500.00	4.10	500.00	4.10	425.00	6.80	425.00	6.80	425.00	6.80	450.00	4.40
500.00	3.20	450.00	6.40	650.00	1.40	450.00	3.90	550.00	1.00	550.00	1.10	450.00	6.80	450.00	6.80	450.00	6.80	500.00	2.50
550.00	1.80	500.00	5.70	600.00	1.70	500.00	1.90	600.00	1.50	600.00	1.50	475.00	3.40	475.00	3.40	475.00	3.40	545.00	1.80
650.00	1.80	513.00	5.40	600.00	2.40	600.00	2.40	600.00	2.40	600.00	2.40	500.00	3.40	500.00	3.40	500.00	3.40	545.00	1.80
700.00	2.50	550.00	5.40	600.00	2.40	600.00	2.40	600.00	2.40	600.00	2.40	550.00	3.40	550.00	3.40	550.00	3.40	545.00	1.80
745.00	1.90	600.00	2.40	650.00	2.40	650.00	2.40	650.00	2.40	650.00	2.40	575.00	3.40	575.00	3.40	575.00	3.40	615.00	1.90
			2.40																
			2.40																

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 8

DATE 710620	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720311
SRVY A3	SRVY A6	SRVY A7	SRVY AR	SRVY AR	SRVY QR	SRVY QR
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
317.00	317.00	317.00	317.00	317.00	317.00	317.00
13.20	13.20	16.70	16.70	16.50	16.50	16.20
333.00	334.00	338.00	336.00	334.00	334.00	335.00
16.20	17.20	17.20	17.20	17.00	17.00	17.00
352.00	354.00	364.00	362.00	350.00	350.00	350.00
16.80	16.80	16.90	17.00	17.00	17.00	17.00
368.00	368.00	376.00	377.00	370.00	368.00	368.00
17.50	17.50	17.50	17.50	17.50	17.50	17.50
375.00	376.00	384.00	384.00	376.00	376.00	376.00
18.20	18.20	18.20	18.20	18.20	18.20	18.20
384.00	384.00	392.00	392.00	386.00	386.00	386.00
18.80	18.80	18.80	18.80	18.80	18.80	18.80
392.00	392.00	400.00	400.00	390.00	390.00	390.00
19.50	19.50	19.50	19.50	19.50	19.50	19.50
400.00	400.00	408.00	408.00	400.00	400.00	400.00
20.20	20.20	20.20	20.20	20.20	20.20	20.20
408.00	408.00	416.00	416.00	408.00	408.00	408.00
21.00	21.00	21.00	21.00	21.00	21.00	21.00
416.00	416.00	424.00	424.00	416.00	416.00	416.00
21.80	21.80	21.80	21.80	21.80	21.80	21.80
424.00	424.00	432.00	432.00	424.00	424.00	424.00
22.60	22.60	22.60	22.60	22.60	22.60	22.60
432.00	432.00	440.00	440.00	432.00	432.00	432.00
23.40	23.40	23.40	23.40	23.40	23.40	23.40
440.00	440.00	448.00	448.00	440.00	440.00	440.00
24.20	24.20	24.20	24.20	24.20	24.20	24.20
448.00	448.00	456.00	456.00	448.00	448.00	448.00
25.00	25.00	25.00	25.00	25.00	25.00	25.00
456.00	456.00	464.00	464.00	456.00	456.00	456.00
25.80	25.80	25.80	25.80	25.80	25.80	25.80
464.00	464.00	472.00	472.00	464.00	464.00	464.00
26.60	26.60	26.60	26.60	26.60	26.60	26.60
472.00	472.00	480.00	480.00	472.00	472.00	472.00
27.40	27.40	27.40	27.40	27.40	27.40	27.40
480.00	480.00	488.00	488.00	480.00	480.00	480.00
28.20	28.20	28.20	28.20	28.20	28.20	28.20
488.00	488.00	496.00	496.00	488.00	488.00	488.00
29.00	29.00	29.00	29.00	29.00	29.00	29.00
496.00	496.00	504.00	504.00	496.00	496.00	496.00
29.80	29.80	29.80	29.80	29.80	29.80	29.80
504.00	504.00	512.00	512.00	504.00	504.00	504.00
30.60	30.60	30.60	30.60	30.60	30.60	30.60
512.00	512.00	520.00	520.00	512.00	512.00	512.00
31.40	31.40	31.40	31.40	31.40	31.40	31.40
520.00	520.00	528.00	528.00	520.00	520.00	520.00
32.20	32.20	32.20	32.20	32.20	32.20	32.20
528.00	528.00	536.00	536.00	528.00	528.00	528.00
33.00	33.00	33.00	33.00	33.00	33.00	33.00
536.00	536.00	544.00	544.00	536.00	536.00	536.00
33.80	33.80	33.80	33.80	33.80	33.80	33.80
544.00	544.00	552.00	552.00	544.00	544.00	544.00
34.60	34.60	34.60	34.60	34.60	34.60	34.60
552.00	552.00	560.00	560.00	552.00	552.00	552.00
35.40	35.40	35.40	35.40	35.40	35.40	35.40
560.00	560.00	568.00	568.00	560.00	560.00	560.00
36.20	36.20	36.20	36.20	36.20	36.20	36.20
568.00	568.00	576.00	576.00	568.00	568.00	568.00
37.00	37.00	37.00	37.00	37.00	37.00	37.00
576.00	576.00	584.00	584.00	576.00	576.00	576.00
37.80	37.80	37.80	37.80	37.80	37.80	37.80
584.00	584.00	592.00	592.00	584.00	584.00	584.00
38.60	38.60	38.60	38.60	38.60	38.60	38.60
592.00	592.00	600.00	600.00	592.00	592.00	592.00
39.40	39.40	39.40	39.40	39.40	39.40	39.40
600.00	600.00	608.00	608.00	600.00	600.00	600.00

PROFILE 8

DATE 720411	DATE 720523	DATE 720617	DATE 721205	DATE 730103	DATE 730213	DATE 730314	DATE 730315
SRVY Q2	SRVY Q1	SRVY QW	SRVY Q5	SRVY Q6	SRVY Q7	SRVY QR	SRVY QR
TIME 1200	TIME 1200	TIME 900	TIME 1000	TIME 1100	TIME 1100	TIME 1000	TIME 1000
317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00
12.70	12.80	12.80	12.90	12.80	12.80	12.80	12.80
333.00	333.00	334.00	334.00	334.00	334.00	334.00	335.00
16.20	16.50	16.50	17.00	16.20	16.00	16.20	16.30
348.00	348.00	350.00	350.00	350.00	348.00	348.00	348.00
17.10	17.50	17.50	17.20	17.50	17.50	17.50	17.50
367.00	367.00	367.00	368.00	368.00	368.00	368.00	368.00
18.00	18.50	18.50	18.00	18.00	18.00	18.20	18.20
385.00	385.00	389.00	389.00	389.00	385.00	385.00	385.00
19.00	19.50	19.50	19.00	19.00	19.00	19.50	19.50
400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
408.00	408.00	408.00	408.00	408.00	408.00	408.00	408.00
21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
416.00	416.00	416.00	416.00	416.00	416.00	416.00	416.00
22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
424.00	424.00	424.00	424.00	424.00	424.00	424.00	424.00
23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
432.00	432.00	432.00	432.00	432.00	432.00	432.00	432.00
24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
440.00	440.00	440.00	440.00	440.00	440.00	440.00	440.00
25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
448.00	448.00	448.00	448.00	448.00	448.00	448.00	448.00
26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00
456.00	456.00	456.00	456.00	456.00	456.00	456.00	456.00
27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00
464.00	464.00	464.00	464.00	464.00	464.00	464.00	464.00
28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
472.00	472.00	472.00	472.00	472.00	472.00	472.00	472.00
29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
480.00	480.00	480.00	480.00	480.00	480.00	480.00	480.00
30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
488.00	488.00	488.00	488.00	488.00	488.00	488.00	488.00
31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00
496.00	496.00	496.00	496.00	496.00	496.00	496.00	496.00
32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
504.00	504.00	504.00	504.00	504.00	504.00	504.00	504.00
33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00
512.00	512.00	512.00	512.00	512.00	512.00	512.00	512.00
34.00	34.00	34.00	34.00	34.00	34.00	34.00	34.00
520.00	520.00	520.00	520.00	520.00	520.00	520.00	520.00
35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
528.00	528.00	528.00	528.00	528.00	528.00	528.00	528.00
36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00
536.00	536.00	536.00	536.00	536.00	536.00	536.00	536.00
37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
544.00	544.00	544.00	544.00	544.00	544.00	544.00	544.00
38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00
552.00	552.00	552.00	552.00	552.00	552.00	552.00	552.00
39.00	39.00	39.00	39.00	39.00	39.00	39.00	39.00
560.00	560.00	560.00	560.00	560.00	560.00	560.00	560.00
40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00
41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00
576.00	576.00	576.00	576.00	576.00	576.00	576.00	576.00
42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00
584.00	584.00	584.00	584.00	584.00	584.00	584.00	584.00
43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00
592.00	592.00	592.00	592.00	592.00	592.00	592.00	592.00
44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE 430121	DATE 610124	DATE 430204	DATE 610212	DATE 430220	DATE 610226	DATE 430304	DATE 610331
SVYV 10	SVYV 11	SVYV 12	SVYV 13	SVYV 14	SVYV 15	SVYV 16	SVYV 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
528.00	7.00	526.00	7.50	525.00	6.70	576.00	6.90
529.00	7.40	527.00	7.80	525.00	6.20	601.00	5.80
530.00	7.80	528.00	8.10	525.00	5.70	626.00	4.70
531.00	8.20	529.00	8.40	525.00	5.20	651.00	3.60
532.00	8.60	530.00	8.70	525.00	4.70	676.00	2.50
533.00	9.00	531.00	9.00	525.00	4.20	701.00	1.40
534.00	9.40	532.00	9.30	525.00	3.70	726.00	0.30
535.00	9.80	533.00	9.60	525.00	3.20	751.00	-0.80
536.00	10.20	534.00	9.90	525.00	2.70	776.00	-1.90

PROFILE 9

DATE 450110	DATE 610124	DATE 450204	DATE 610212	DATE 410413	DATE 610425	DATE 410711	DATE 610723
SVYV 18	SVYV 19	SVYV 20	SVYV 21	SVYV 22	SVYV 23	SVYV 24	SVYV 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
635.00	5.60	475.00	11.20	453.00	13.00	551.00	6.80
657.00	3.60	508.00	8.60	473.00	10.50	576.00	6.20
676.00	1.70	528.00	7.30	500.00	8.60	602.00	7.50
752.00	-0.70	572.00	6.40	525.00	7.20	630.00	5.00
		631.00	6.50	550.00	6.50	677.00	4.00
		656.00	4.70	577.00	6.60	702.00	-1.00
		679.00	2.80	602.00	7.10		
		703.00	1.20	627.00	6.20		
		728.00	-1.10	651.00	5.20		
				676.00	4.20		
				701.00	3.20		
				726.00	2.20		
				751.00	1.20		
				776.00	0.20		

LONG REACH ISLAND M.S.L.
 DATUM IS "MSL" MEASUREMENT IS FT

PROFILE 9

DATE 630800	DATE 630820	DATE 630906	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227
SVY 26	SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
552.00	6.70	551.00	6.60	577.00	6.60	479.00	10.70
601.00	6.50	602.00	7.20	609.00	7.20	529.00	8.00
645.00	6.80	628.00	7.30	628.00	8.00	580.00	6.20
687.00	7.00	652.00	8.00	652.00	8.00	605.00	7.10
725.00	7.30	701.00	8.00	701.00	8.00	639.00	8.50
776.00	-1.10	736.00	1.60	672.00	-1.00	252.00	12.40
	-2.20	778.00	-2.50	726.00	-2.40	304.00	13.40
						353.00	14.30
						400.00	14.70
						407.00	14.50
						417.00	14.90
						426.00	14.80
						439.00	13.80
						479.00	10.80
						532.00	8.40
						586.00	6.40
						605.00	7.10
						631.00	7.40
						631.00	5.30
						661.00	-2.70

PROFILE 9

DATE 640115	DATE 640212	DATE 640310	DATE 640327	DATE 640325	DATE 640624	DATE 640629	DATE 640929
SVY 34	SVY 35	SVY 36	SVY 37	SVY 38	SVY 39	SVY 40	SVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-115.00	076.00	9.50	404.00	15.60	400.00	14.80	389.00
-50.00	501.00	7.30	425.00	12.90	424.00	13.20	394.00
07.00	572.00	7.30	450.00	13.70	450.00	13.50	425.00
206.00	6.50	476.00	7.10	476.00	8.50	476.00	9.20
309.00	12.40	628.00	1.10	521.00	6.30	475.00	14.40
389.00	10.40	653.00	1.10	521.00	4.10	501.00	9.60
475.00	15.60	678.00	-1.30	578.00	3.10	602.00	7.20
475.00	13.40	693.00	-2.40	604.00	1.80	627.00	-2.10
526.00	8.40			626.00	-1.20	672.00	5.70
552.00	3.50	677.00	-1.90			672.00	-1.70
603.00	1.40						617.00
678.00	-1.00						
686.00	-1.40						

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/01/01	4/2	6/01/10	4/5	6/04/27	4/0	6/10/07	4/5	6/10/27	4/6	6/11/27	4/7	6/01/25	4/4
SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY
349.00	14.50	485.00	11.50	434.00	15.70	438.00	15.90	400.00	15.90	400.00	15.90	385.00	14.10
400.00	15.40	480.00	9.90	439.00	15.90	476.00	10.50	452.00	14.70	450.00	10.50	409.00	16.10
425.00	13.90	501.00	7.50	465.00	12.00	500.00	8.10	474.00	10.00	470.00	10.30	426.00	15.50
471.00	14.10	529.00	4.60	501.00	8.00	531.00	7.80	507.00	7.80	507.00	8.00	433.00	13.80
475.00	10.50	588.00	5.70	552.00	6.00	607.00	7.80	582.00	7.00	551.00	8.20	460.00	14.20
501.00	8.00	625.00	2.60	602.00	1.70	657.00	3.70	587.00	5.00	563.00	7.00	451.00	11.50
526.00	6.50	652.00	0.40	630.00	0.00	677.00	1.50	629.00	5.00	581.00	7.00	451.00	5.80
551.00	6.50	678.00	0.90	640.00	0.00	677.00	1.50	629.00	5.00	581.00	7.00	451.00	3.30
602.00	2.10	703.00	-2.80	693.00	-1.10	703.00	-2.10	601.00	7.10	602.00	5.80	677.00	-2.70
627.00	0.00			688.00	-2.70	703.00	-2.10	653.00	0.00	652.00	1.80	626.00	1.80
652.00	-2.00							679.00	-1.10	672.00	0.30		
								703.00	-1.20	692.00	-2.70		
								726.00	-1.60				
								753.00	-1.10				
								778.00	-1.10				
								803.00	-2.10				

PROFILE 9

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/09/22	5/0	6/70/16	5/1	6/705/05	5/2	6/709/20	5/4	6/712/18	5/5	6/90/17	5/6	6/90/27	5/7
SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY	SHVY
400.00	15.40	427.00	17.40	399.00	18.00	405.00	17.90	424.00	17.90	427.00	17.90	400.00	16.80
450.00	15.00	453.00	14.50	423.00	19.60	427.00	18.50	458.00	13.80	453.00	13.80	422.00	17.80
490.00	11.40	501.00	8.80	435.00	17.10	441.00	15.40	476.00	10.00	463.00	10.30	457.00	13.80
500.00	8.70	531.00	7.50	453.00	14.60	451.00	13.20	506.00	6.60	501.00	6.70	481.00	9.20
526.00	8.60	578.00	7.90	480.00	10.40	475.00	10.50	526.00	4.10	510.00	5.90	525.00	4.80
551.00	5.90	601.00	5.40	500.00	8.70	501.00	8.30	551.00	5.10	575.00	3.20	551.00	5.00
600.00	4.30	628.00	2.50	525.00	7.30	526.00	7.50	581.00	3.00	600.00	0.70	600.00	-1.50
627.00	1.20	651.00	-4.00	551.00	6.30	601.00	2.20	629.00	1.50	629.00	-1.50	629.00	-2.50
652.00	-2.60			576.00	5.80	601.00	6.20	651.00	-1.50	651.00	-1.50	629.00	-3.80
				626.00	1.10	626.00	-1.70						
				651.00	1.10	651.00	-2.60						

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME	DATE SVV TIME
61009	61021	61113	61218	61315	61420	61525	61630	61735	61840	61945	62050	62155
59	60	61	62	63	64	65	66	67	68	69	70	71
015.00	015.00	025.00	025.00	025.00	025.00	025.00	025.00	025.00	025.00	025.00	025.00	025.00
17.70	17.50	17.70	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10
052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00	052.00
072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00	072.00
500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00	556.00
568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00	568.00
575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00
650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00
700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00

LONG BEACH ISLAND N.S.J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE 9

DATE 70623R	DATE 70121P	DATE 701207	DATE 701214	DATE 71011P	DATE 720223	DATE 720313	DATE 720611
SVY 75	SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 91	SVY 92
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
187.00	147.00	147.00	147.00	400.00	15.30	187.00	187.00
397.00	400.00	400.00	16.90	425.00	16.20	400.00	407.00
400.00	423.00	18.10	18.90	400.00	16.70	400.00	174.00
423.00	438.00	15.70	18.80	400.00	18.10	425.00	426.00
451.00	450.00	19.50	15.50	454.00	18.00	410.00	436.00
451.00	458.00	19.50	40.00	475.00	15.70	459.00	459.00
463.00	465.00	21.10	13.30	515.00	15.30	455.00	470.00
463.00	465.00	1.30	10.00	561.00	13.30	475.00	479.00
500.00	500.00	-1.00	8.20	567.00	7.00	484.00	505.00
550.00	550.00	8.20	5.00	600.00	5.00	500.00	527.00
600.00	560.00	7.00	5.20	650.00	4.50	515.00	550.00
650.00	600.00	5.00	575.00	675.00	4.50	540.00	590.00
690.00	600.00	1.30	600.00	7.00	4.50	600.00	600.00
700.00	700.00	2.20	625.00	1.50	1.00	650.00	650.00
700.00	750.00	2.20	650.00	4.00	2.00	700.00	700.00
700.00	775.00	2.60	675.00	2.50	2.20	700.00	700.00

PROFILE 9

DATE 720625	DATE 721017	DATE 721205	DATE 730103	DATE 730213	DATE 730314	DATE 730325	DATE 740403
SVY 93	SVY 90	SVY 95	SVY 96	SVY 97	SVY 98	SVY 99	SVY 100
TIME 1300	TIME 1000	TIME 1100	TIME 1100	TIME 1100	TIME 1000	TIME 700	TIME 1100
387.00	10.80	10.80	387.00	10.80	18.90	517.00	367.00
400.00	16.90	400.00	400.00	17.00	400.00	400.00	400.00
425.00	17.10	425.00	400.00	15.70	425.00	425.00	425.00
450.00	15.10	450.00	450.00	15.70	450.00	450.00	450.00
450.00	15.10	450.00	459.00	15.50	450.00	450.00	450.00
489.00	13.70	450.00	476.00	12.50	480.00	480.00	480.00
500.00	11.50	468.00	479.00	9.80	478.00	468.00	468.00
552.00	9.70	500.00	500.00	7.00	500.00	470.00	460.00
600.00	8.70	550.00	6.00	5.20	550.00	6.00	550.00
650.00	8.10	600.00	5.00	4.00	600.00	5.00	600.00
650.00	6.10	625.00	4.00	2.40	625.00	4.00	600.00
700.00	2.50	675.00	2.50	2.40	675.00	2.50	600.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE	TIME	DATE	TIME
750617	101	710417	101
SRVY	1300	SRVY	1100
TIME	1300	TIME	1100
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187.00	14.00	347.00	14.90
400.00	16.00	400.00	16.90
625.00	18.20	431.00	17.90
639.00	15.00	439.00	15.50
663.00	14.50	450.00	15.30
470.00	11.90	473.00	11.10
500.00	8.10	500.00	6.50
516.00	6.00	550.00	7.30
539.00	6.20	575.00	5.50
600.00	8.10	600.00	3.00
620.00	6.40	620.00	1.00
650.00	-2.30	641.00	-2.50
675.00	-3.00		

PROFILE 10

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
620924	1	620924	2	621011	II	621023	5	621029	6	621108	7	621210	8	621114	9	621114	10
SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200	SRVY	1200
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
58.00	12.00	95.00	8.00	95.00	8.40	113.00	12.10	148.00	11.70	-3.00	12.20	117.00	12.50	0.00	12.50	0.00	12.50
75.00	7.00	100.00	12.00	100.00	12.00	132.00	12.70	161.00	12.10	112.00	12.50	199.00	11.90	56.00	13.50	56.00	13.50
94.00	8.00	116.00	7.20	116.00	13.40	87.00	11.60	232.00	6.50	152.00	12.10	171.00	11.50	73.00	8.50	73.00	8.50
103.00	12.00	143.00	7.60	150.00	8.40	181.00	12.00	567.00	6.10	183.00	10.90	172.00	8.50	16.00	6.50	16.00	6.50
107.00	12.00	170.00	8.40	189.00	8.40	235.00	8.40	587.00	6.10	183.00	7.40	192.00	8.00	113.00	12.50	113.00	12.50
117.00	8.00	180.00	4.00	210.00	7.00	261.00	6.10	298.00	1.10	217.00	8.40	252.00	7.00	115.00	12.00	115.00	12.00
140.00	7.00	180.00	4.00	210.00	6.20	330.00	-1.10	370.00	-2.20	274.00	8.40	300.00	7.00	124.00	13.50	124.00	13.50
171.00	8.50	203.00	4.00	243.00	2.90	311.00	2.90	311.00	2.90	300.00	-0.70	324.00	-1.50	170.00	11.50	170.00	11.50
189.00	5.00	240.00	8.00	311.00	1.50	341.00	-1.00							172.00	6.50	172.00	6.50
201.00	1.00													203.00	7.20	203.00	7.20
300.00	-1.10													250.00	5.90	250.00	5.90
308.00	-2.70													256.00	4.70	256.00	4.70
360.00	-3.10													301.00	0.50	301.00	0.50
														324.00	-1.50	324.00	-1.50

LONG BEACH ISLAND, N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 10

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
202.00	7.10	171.00	9.00	151.00	11.50	169.00	10.80	167.00	11.40	175.00	9.20	201.00	6.70	
250.00	2.80	178.00	8.60	170.00	10.70	175.00	9.00	169.00	10.50	205.00	7.00	245.00	5.40	
300.00	-1.70	220.00	4.10	224.00	5.00	196.00	7.80	176.00	9.10	226.00	5.10	241.00	5.40	
		252.00	3.00	250.00	2.90	226.00	5.90	192.00	7.40	251.30	3.00	275.00	1.90	
		276.00	1.10	276.00	1.20	253.00	3.20	192.00	6.90	276.00	1.10	300.00	-1.70	
		302.00	-0.30	302.00	-1.50	277.00	-0.30	301.00	-1.10	326.00	-1.20	326.00	-2.20	
		326.00	-1.40	301.00	-0.60			292.00	3.10	351.00	-2.00			
								301.00	-1.70					
								320.00	-1.90					

PROFILE 10

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
88.00	8.00	196.00	7.20	184.00	7.50	-1.00	12.20	231.00	6.80	201.00	6.90	182.00	6.60	
69.00	13.30	216.00	7.00	201.00	7.00	51.00	12.70	275.00	7.00	276.00	6.40	205.00	7.40	
111.00	15.30	253.00	6.70	230.00	6.70	51.00	15.20	291.00	6.70	276.00	7.50	221.00	6.50	
112.00	12.40	255.00	5.80	250.00	3.90	79.00	15.00	301.00	6.30	302.00	4.50	272.30	7.00	
125.00	15.40	301.00	1.00	250.00	1.90	80.00	11.90	320.00	1.60	326.00	0.00	302.00	4.00	
184.00	11.50	301.00	-2.20	376.00	-1.30	100.00	13.10	350.00	-0.20	351.00	-1.10			
171.00	10.50	352.00	-1.00			117.00	13.40	377.00	-1.30	376.00	-2.50			
178.00	8.90			125.00	14.10									
202.00	6.20			182.00	8.30									
226.00	6.20			200.00	7.20									
259.00	5.60			226.00	6.00									
259.00	3.70			250.00	6.60									
275.00	1.30			292.00	6.50									
301.00	-1.10			351.00	-0.80									
				377.00	-1.10									

LONG BEACH ISLAND No. 22
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 10

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/1201	650119	650127	650907	651027	651222	660125	660227	660327	660327	660125	660227	660327	660327	660125	660227
SHVY 42	SHVY 43	SHVY 44	SHVY 45	SHVY 46	SHVY 47	SHVY 48	SHVY 49	SHVY 50	SHVY 51	SHVY 52	SHVY 53	SHVY 54	SHVY 55	SHVY 56	SHVY 57
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
110.00	12.50	154.00	11.00	148.00	13.80	150.00	13.40	147.00	13.70	149.00	13.40	179.00	9.00	170.00	10.70
125.00	11.00	202.00	7.50	161.00	9.40	160.00	11.20	149.00	12.00	170.00	10.50	120.00	15.00	260.00	4.20
145.00	12.70	252.00	4.60	201.00	8.80	171.00	10.40	173.00	8.60	201.00	8.20	150.00	13.70	301.00	5.70
161.00	12.40	277.00	3.90	227.00	6.90	202.00	8.00	201.00	7.40	251.00	7.60	178.00	10.70	325.00	3.40
176.00	10.60	328.00	1.40	252.00	6.70	252.00	7.20	251.00	4.00	289.00	8.50	251.00	6.30	352.00	2.60
201.00	9.40	374.00	-1.50	277.00	6.20	302.00	7.90	286.00	4.60	302.00	7.00	302.00	3.50	374.00	4.00
225.00	7.80	404.00	-1.60	315.00	5.10	317.00	6.20	305.00	6.50	327.00	3.40	312.00	4.50	404.00	4.10
252.00	3.40	424.00	-3.00	354.00	2.80	352.00	2.40	352.00	3.10	377.00	-1.00	372.00	6.00	424.00	4.10
275.00	3.00	474.00	-2.40	394.00	1.10	379.00	1.10	378.00	3.10	377.00	-1.00	377.00	6.00	474.00	-2.30
302.00	2.20	524.00	-2.20	427.00	-2.20	427.00	-2.20	417.00	-2.50	402.00	-2.00	402.00	-2.00	524.00	-2.30
352.00	-1.20														

PROFILE 10

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
660924	670114	670505	670920	671214	680117	680125	680227	680327	680327	680125	680227	680327	680327	680125	680227
SHVY 50	SHVY 51	SHVY 52	SHVY 53	SHVY 54	SHVY 55	SHVY 56	SHVY 57	SHVY 58	SHVY 59	SHVY 60	SHVY 61	SHVY 62	SHVY 63	SHVY 64	SHVY 65
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
163.00	13.00	156.00	14.30	120.00	13.80	107.00	12.00	105.00	10.80	178.00	14.10	148.00	15.00	120.00	11.70
182.00	10.00	147.00	13.50	154.00	15.00	154.00	14.00	171.00	11.20	160.00	10.50	144.00	14.00	150.00	12.00
202.00	8.80	179.00	10.40	170.00	13.70	174.00	11.20	200.00	9.50	200.00	9.20	199.00	9.00	175.00	13.50
226.00	8.20	201.00	8.90	195.00	9.20	194.00	6.90	226.00	6.70	209.00	6.90	227.00	6.00	193.00	5.40
251.00	8.00	251.00	7.20	226.00	6.50	226.00	6.90	251.00	4.60	274.00	6.40	250.00	4.30	234.00	6.60
302.00	4.20	300.00	7.50	251.00	4.80	251.00	7.10	278.00	4.30	325.00	1.50	278.00	2.50	256.00	5.10
327.00	3.40	320.00	6.50	276.00	1.70	276.00	4.40	301.00	4.60	359.00	-1.50	300.00	1.40	284.00	4.80
352.00	1.00	351.00	2.40	301.00	-1.30	301.00	-1.30	325.00	2.60	350.00	-1.00	350.00	-1.00	349.00	3.30
377.00	-2.00	374.00	4.30	351.00	-2.00	351.00	-2.00	402.00	-1.20	402.00	-1.20	402.00	-1.20	374.00	-3.30

LONG BEACH ISLAND N.J.
 DATUM IS HSL MEASUREMENT TS FT

PROFILE 10

DATE 681009	DATE 681021	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690304	DATE 690428
SVY 59	SVY 60	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
180.00	194.00	115.00	134.30	120.00	144.10	115.00	115.00
165.00	164.00	145.00	149.30	105.00	144.20	143.00	143.00
177.00	114.00	170.00	134.70	170.00	134.60	175.00	165.00
185.00	84.00	185.00	104.00	180.00	172.00	142.00	165.00
204.00	94.20	205.00	84.00	225.00	74.00	225.00	84.00
275.00	254.00	44.50	250.00	64.00	275.00	24.00	200.00
300.00	341.00	270.00	300.00	74.00	275.00	24.00	250.00
350.00	144.00	300.00	44.50	275.00	24.00	250.00	250.00
400.00	144.00	325.00	340.00	74.00	300.00	80.00	300.00
425.00	144.00	375.00	375.00	144.00	300.00	80.00	300.00
	350.00	400.00	400.00	340.00	350.00	144.00	400.00
	375.00	430.00	430.00	375.00	144.00		
	400.00	460.00	460.00				
	425.00	490.00	490.00				

PROFILE 10

DATE 680924	DATE 691028	DATE 691118	DATE 691214	DATE 700120	DATE 700214	DATE 700310	DATE 700521
SVY 67	SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
80.00	104.20	80.00	104.10	80.00	104.20	145.00	144.20
120.00	104.00	115.00	134.60	117.00	145.00	143.00	143.00
150.00	104.70	167.00	167.00	150.00	150.00	164.00	164.00
167.00	134.00	167.00	134.20	164.00	134.90	164.00	164.00
177.00	94.00	177.00	94.00	175.00	200.00	164.00	164.00
194.00	84.10	200.00	84.10	175.00	200.00	164.00	164.00
225.00	84.10	225.00	84.10	200.00	200.00	164.00	164.00
246.00	94.00	250.00	94.00	225.00	270.00	221.00	221.00
275.00	54.30	275.00	54.20	225.00	300.00	250.00	250.00
300.00	54.30	300.00	340.00	245.00	347.00	250.00	250.00
325.00	144.00	340.00	340.00	245.00	347.00	250.00	250.00
375.00	144.00	375.00	400.00	340.00	347.00	250.00	250.00
400.00	144.00	400.00	430.00	340.00	347.00	250.00	250.00
425.00	144.00	430.00	460.00	340.00	347.00	250.00	250.00
450.00	144.00	460.00	490.00	340.00	347.00	250.00	250.00
475.00	144.00	490.00	520.00	340.00	347.00	250.00	250.00
500.00	144.00	520.00	550.00	340.00	347.00	250.00	250.00
525.00	144.00	550.00	580.00	340.00	347.00	250.00	250.00
550.00	144.00	580.00	610.00	340.00	347.00	250.00	250.00
575.00	144.00	610.00	640.00	340.00	347.00	250.00	250.00
600.00	144.00	640.00	670.00	340.00	347.00	250.00	250.00
625.00	144.00	670.00	700.00	340.00	347.00	250.00	250.00
650.00	144.00	700.00	730.00	340.00	347.00	250.00	250.00
675.00	144.00	730.00	760.00	340.00	347.00	250.00	250.00
700.00	144.00	760.00	790.00	340.00	347.00	250.00	250.00
725.00	144.00	790.00	820.00	340.00	347.00	250.00	250.00
750.00	144.00	820.00	850.00	340.00	347.00	250.00	250.00
775.00	144.00	850.00	880.00	340.00	347.00	250.00	250.00
800.00	144.00	880.00	910.00	340.00	347.00	250.00	250.00
825.00	144.00	910.00	940.00	340.00	347.00	250.00	250.00
850.00	144.00	940.00	970.00	340.00	347.00	250.00	250.00
875.00	144.00	970.00	1000.00	340.00	347.00	250.00	250.00
900.00	144.00	1000.00	1030.00	340.00	347.00	250.00	250.00
925.00	144.00	1030.00	1060.00	340.00	347.00	250.00	250.00
950.00	144.00	1060.00	1090.00	340.00	347.00	250.00	250.00
975.00	144.00	1090.00	1120.00	340.00	347.00	250.00	250.00
1000.00	144.00	1120.00	1150.00	340.00	347.00	250.00	250.00

LONG BEACH ISLAND N.J.
 DATUM IS PSL MEASUREMENT IS FT

PROFILE 10

DATE 700R28	DATE 701P12	DATE 701Z07	DATE 701Z10	DATE 701I12	DATE 710Z0R	DATE 710S0R	DATE 710G0R
SVVY 75	SVVY 7A	SVVY 77	SVVY 7A	SVVY 79	SVVY 80	SVVY 81	SVVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
80.00	10.00	10.50	80.00	10.40	80.00	10.40	80.00
105.00	13.00	15.00	100.00	12.70	100.00	12.80	100.00
195.00	15.00	18.50	150.00	14.00	150.00	14.50	150.00
170.00	13.00	8.90	125.00	12.80	115.00	12.50	115.00
180.00	10.00	6.00	150.00	15.10	150.00	14.90	150.00
200.00	9.50	0.00	175.00	11.80	165.00	13.50	175.00
250.00	4.70	1.50	200.00	8.90	180.00	10.50	180.00
300.00	4.20	-1.20	225.00	7.10	200.00	8.50	200.00
350.00	3.00	-2.30	275.00	5.80	225.00	6.50	225.00
400.00	3.00	-2.80	282.00	5.80	240.00	4.90	240.00
450.00	-1.50	2.80	300.00	4.10	350.00	2.50	350.00
500.00	-2.00	4.00	325.00	1.40	375.00	-2.10	375.00
	500.00	-2.80	350.00	0.00	425.00	-5.50	425.00
					475.00	2.40	475.00
					500.00	-5.50	500.00

PROFILE 10

DATE 710B28	DATE 710R17	DATE 711007	DATE 711Z14	DATE 720I12	DATE 720Z15	DATE 720Z24	DATE 720A1E
SVVY 83	SVVY 85	SVVY 86	SVVY 87	SVVY 88	SVVY 80	SVVY 90	SVVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
80.00	10.00	10.30	80.00	10.30	80.00	10.20	80.00
95.00	19.10	18.20	100.00	12.70	100.00	12.50	100.00
105.00	17.20	15.20	150.00	11.90	150.00	11.80	150.00
135.00	17.20	15.20	150.00	11.90	150.00	11.80	150.00
165.00	18.00	11.70	170.00	13.60	170.00	13.10	170.00
180.00	15.20	9.00	180.00	10.60	180.00	10.20	180.00
190.00	15.20	9.00	200.00	9.90	200.00	8.20	200.00
200.00	9.60	9.00	220.00	9.20	220.00	8.20	220.00
260.00	8.00	2.40	240.00	7.40	240.00	6.00	240.00
300.00	2.80	1.10	250.00	6.90	250.00	4.60	250.00
350.00	-0.60	-2.80	275.00	6.60	280.00	4.10	280.00
	450.00	-1.90	300.00	3.10	300.00	4.00	300.00
	450.00	-2.40	375.00	-1.80	400.00	2.50	400.00
			425.00	-3.80	425.00	-2.40	425.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 10

DATE 720011	DATE 720023	DATE 721017	DATE 721205	DATE 740103	DATE 730215	DATE 740314	DATE 740325
SVY 02	SVY 01	SVY 04	SVY 05	SVY 06	SVY 07	SVY 08	SVY 09
TIME 1200	TIME 1300	TIME 1000	TIME 1100	TIME 1100	TIME 1100	TIME 1000	TIME 700
80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
10.30	10.30	10.40	10.60	10.40	10.50	10.70	10.50
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
12.50	12.60	12.40	12.40	12.40	13.20	13.50	13.10
115.00	118.00	118.00	118.00	117.00	117.00	119.00	119.00
14.40	15.70	14.80	15.00	14.80	15.00	15.00	14.00
128.00	148.00	148.00	147.00	145.00	146.00	146.00	143.00
15.40	16.00	15.00	15.70	15.00	15.60	15.70	15.90
184.00	186.00	186.00	180.00	180.00	180.00	180.00	176.00
179.00	183.00	183.00	183.00	183.00	183.00	182.00	172.00
176.00	186.00	186.00	186.00	186.00	186.00	185.00	176.00
200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
2.40	2.90	2.40	2.60	2.40	2.60	2.40	2.70
289.00	280.00	285.00	280.00	280.00	280.00	280.00	280.00
3.10	3.10	3.10	3.00	3.00	3.00	3.10	3.10
300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
325.00	325.00	325.00	325.00	325.00	325.00	325.00	325.00
340.00	340.00	340.00	340.00	340.00	340.00	340.00	340.00
375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
430.00	430.00	430.00	430.00	430.00	430.00	430.00	430.00
460.00	460.00	460.00	460.00	460.00	460.00	460.00	460.00
490.00	490.00	490.00	490.00	490.00	490.00	490.00	490.00
520.00	520.00	520.00	520.00	520.00	520.00	520.00	520.00
550.00	550.00	550.00	550.00	550.00	550.00	550.00	550.00
580.00	580.00	580.00	580.00	580.00	580.00	580.00	580.00
610.00	610.00	610.00	610.00	610.00	610.00	610.00	610.00
640.00	640.00	640.00	640.00	640.00	640.00	640.00	640.00
670.00	670.00	670.00	670.00	670.00	670.00	670.00	670.00
700.00	700.00	700.00	700.00	700.00	700.00	700.00	700.00
730.00	730.00	730.00	730.00	730.00	730.00	730.00	730.00
760.00	760.00	760.00	760.00	760.00	760.00	760.00	760.00
790.00	790.00	790.00	790.00	790.00	790.00	790.00	790.00
820.00	820.00	820.00	820.00	820.00	820.00	820.00	820.00
850.00	850.00	850.00	850.00	850.00	850.00	850.00	850.00
880.00	880.00	880.00	880.00	880.00	880.00	880.00	880.00
910.00	910.00	910.00	910.00	910.00	910.00	910.00	910.00
940.00	940.00	940.00	940.00	940.00	940.00	940.00	940.00
970.00	970.00	970.00	970.00	970.00	970.00	970.00	970.00
1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00

PROFILE 10

DATE 730003	DATE 730017	DATE 730017	DATE 730012
SVY 100	SVY 101	SVY 103	SVY 105
TIME 1100	TIME 1300	TIME 1100	TIME 1100
80.00	80.00	80.00	80.00
12.40	12.40	12.40	12.40
109.00	109.00	109.00	109.00
127.00	127.00	127.00	127.00
147.00	147.00	147.00	147.00
171.00	171.00	171.00	171.00
200.00	200.00	200.00	200.00
250.00	250.00	250.00	250.00
285.00	285.00	285.00	285.00
310.00	310.00	310.00	310.00
340.00	340.00	340.00	340.00
370.00	370.00	370.00	370.00
400.00	400.00	400.00	400.00
430.00	430.00	430.00	430.00
460.00	460.00	460.00	460.00
490.00	490.00	490.00	490.00
520.00	520.00	520.00	520.00
550.00	550.00	550.00	550.00
580.00	580.00	580.00	580.00
610.00	610.00	610.00	610.00
640.00	640.00	640.00	640.00
670.00	670.00	670.00	670.00
700.00	700.00	700.00	700.00
730.00	730.00	730.00	730.00
760.00	760.00	760.00	760.00
790.00	790.00	790.00	790.00
820.00	820.00	820.00	820.00
850.00	850.00	850.00	850.00
880.00	880.00	880.00	880.00
910.00	910.00	910.00	910.00
940.00	940.00	940.00	940.00
970.00	970.00	970.00	970.00
1000.00	1000.00	1000.00	1000.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 620928	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 621115									
SVY 1	SVY 2	SVY 3	SVY 4	SVY 5	SVY 6	SVY 7									
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200									
302.00	12.00	299.00	10.90	330.00	14.50	327.00	15.90	333.00	15.30	329.00	15.90	307.00	10.90	-1.00	5.10
312.00	12.70	310.00	11.50	352.00	19.10	347.00	13.50	386.00	8.70	341.00	19.10	319.00	14.90	100.00	6.90
318.00	15.80	315.00	10.70	392.00	8.30	390.00	9.20	407.00	7.40	368.00	10.60	341.00	16.90	200.00	9.40
335.00	16.10	425.00	15.40	409.00	8.30	406.00	7.80	423.00	5.30	367.00	8.20	371.00	7.00	300.00	11.80
353.00	13.80	335.00	13.80	413.00	7.80	431.00	4.80	466.00	1.20	390.00	4.50	407.00	3.00	306.00	11.90
385.00	9.80	358.00	12.70	439.00	5.90	453.00	1.90	486.00	-1.30	485.00	2.20	487.00	0.00	317.00	11.30
399.00	9.40	388.00	8.70	471.00	2.20	494.00	-1.00	506.00	-3.30	490.00	2.00	487.00	0.00	317.00	11.30
412.00	6.30	398.00	6.10	482.00	0.80					541.00	-0.20	541.00	-0.20	352.00	16.90
462.00	2.80	425.00	2.10											376.00	7.80
489.00	1.80	451.00	1.50											400.00	8.90
507.00	-2.20	486.00	-1.50											417.00	8.30
533.00	-2.80	510.00	-1.20											425.00	8.70
552.00	-5.10	540.00	-2.30											451.00	4.20
		558.00	-1.10											475.00	3.50
														501.00	2.60
														551.00	-1.60
														576.00	-1.90

PROFILE 11

DATE 630121	DATE 630128	DATE 630204	DATE 630212	DATE 630220	DATE 630226	DATE 630304									
SVY 10	SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 16									
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200									
000.00	8.00	160.00	10.70	330.00	17.00	351.00	12.00	401.00	11.60	451.00	8.50	451.00	8.70	500.00	5.90
412.00	8.90	401.00	10.20	353.00	11.90	376.00	12.60	424.00	9.70	501.00	5.90	501.00	6.20	526.00	4.60
418.00	7.90	425.00	9.80	375.00	12.60	401.00	11.60	477.00	7.50	524.00	3.90	551.00	2.70	551.00	2.90
450.00	6.10	451.00	8.30	390.00	12.80	451.00	8.40	525.00	5.40	551.00	1.90	601.00	2.80	576.00	2.60
500.00	3.30	475.00	6.90	400.00	11.50	501.00	6.30	525.00	3.40	576.00	2.20	626.00	-2.80	602.00	-4.00
550.00	-2.70	525.00	4.80	425.00	10.20	551.00	1.20	576.00	1.70	601.00	-1.20			626.00	-1.70
575.00	-4.80	575.00	2.00	476.00	7.20	576.00	-0.40	601.00	-1.20						
		601.00	-0.90	526.00	5.20										
				601.00	-1.00										

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 610119	DATE 610126	DATE 610400	DATE 610528	DATE 610613	DATE 610625	DATE 610711	DATE 610723
SVY 1A	SVY 1B	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
502.00	357.00	358.00	4.50	401.00	475.00	401.00	400.00
530.00	377.00	401.00	5.00	451.00	527.00	426.00	451.00
551.00	405.00	426.00	123.00	477.00	552.00	476.00	501.00
601.00	426.00	451.00	300.00	501.00	577.00	501.00	526.00
	452.00	476.00	330.00	527.00	602.00	527.00	577.00
	505.00	502.00	335.00	576.00			
	500.00	6.00	351.00	627.00			
	525.00	4.50	376.00				
	552.00	6.00	360.00	11.90			
	602.00	4.60	400.00	12.20			
		1.20	425.00	11.20			
			451.00	9.10			
			451.00	8.30			
			501.00	5.10			
			528.00	3.10			
			552.00	1.70			
			576.00	0.20			
			602.00	-1.50			

PROFILE 11

DATE 610906	DATE 610920	DATE 610926	DATE 611010	DATE 611025	DATE 611115	DATE 611227
SVY 26	SVY 27	SVY 28	SVY 29	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
371.00	352.00	403.00	382.00	404.00	397.00	300.00
380.00	376.00	429.00	405.00	483.00	428.00	312.00
392.00	392.00	454.00	429.00	455.00	455.00	337.00
402.00	391.00	505.00	452.00	505.00	478.00	357.00
451.00	450.00	566.00	480.00	540.00	505.00	379.00
475.00	452.00	582.00	505.00	556.00	531.00	405.00
500.00	475.00	607.00	530.00	581.00	582.00	430.00
520.00	524.00		550.00	606.00	606.00	480.00
551.00	535.00		581.00	-1.00		505.00
601.00	601.00					526.00
						566.00
						600.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN
-132.00	0.10	451.00	12.70	295.00	17.80	395.00	11.70	300.00	16.00	400.00	13.00	300.00	13.00	400.00	13.00
-103.00	4.70	360.00	13.00	312.00	17.00	393.00	16.90	300.00	16.00	400.00	13.00	300.00	13.00	400.00	13.00
-53.00	5.00	401.00	10.80	322.00	17.00	385.00	16.90	300.00	16.00	400.00	13.00	300.00	13.00	400.00	13.00
-33.00	5.10	427.00	6.60	365.00	17.80	365.00	12.10	361.00	12.20	359.00	11.90	343.00	12.00	343.00	12.00
07.00	5.30	427.00	6.60	407.00	18.00	365.00	11.70	402.00	10.10	376.00	11.50	359.00	12.00	359.00	12.00
07.00	5.30	427.00	6.60	416.00	18.10	375.00	10.10	402.00	10.10	376.00	11.50	359.00	12.00	359.00	12.00
98.00	6.70	476.00	4.80	453.00	18.00	426.00	7.40	452.00	7.40	405.00	8.00	402.00	10.00	402.00	10.00
108.00	7.70	509.00	2.00	477.00	6.20	425.00	6.20	476.00	6.10	477.00	6.00	477.00	6.00	477.00	6.00
199.00	9.20	528.00	1.10	502.00	6.70	476.00	6.80	476.00	6.80	502.00	3.30	502.00	4.60	454.00	3.10
209.00	10.50	577.00	2.00	528.00	6.00	502.00	3.50	527.00	3.50	527.00	3.50	527.00	3.50	527.00	3.50
308.00	11.60	603.00	1.90	603.00	6.90	527.00	1.20	593.00	-1.90					560.00	-0.00
332.00	17.00	603.00	1.70	603.00	7.70	512.00	6.60	553.00	-1.70					560.00	-0.00
353.00	17.00	603.00	1.70	603.00	8.20	527.00	6.50							560.00	-0.00
377.00	12.60	603.00	1.60	603.00	8.20	598.00	-2.70							560.00	-0.00
402.00	11.10	603.00	1.60											560.00	-0.00
411.00	9.30	603.00	1.60											560.00	-0.00
472.00	3.00	603.00	1.60											560.00	-0.00
492.00	5.10	603.00	1.60											560.00	-0.00
551.00	2.00	603.00	1.60											560.00	-0.00
579.00	2.00	603.00	1.60											560.00	-0.00
600.00	-3.30	603.00	1.60											560.00	-0.00
650.00	-2.20	603.00	1.60											560.00	-0.00

PROFILE 11

DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN
299.00	12.70	371.00	11.90	332.00	19.10	332.00	18.10	343.00	17.00	350.00	13.00	350.00	13.00	350.00	13.00
310.00	16.50	401.00	10.10	364.00	12.80	368.00	16.90	350.00	13.60	310.00	17.80	370.00	13.20	370.00	13.20
325.00	17.00	427.00	8.00	404.00	9.70	406.00	356.00	390.00	9.60	325.00	19.40	401.00	19.40	401.00	19.40
343.00	16.80	451.00	6.70	451.00	7.90	451.00	10.10	451.00	7.80	355.00	12.80	400.00	12.80	400.00	12.80
365.00	12.60	477.00	5.80	452.00	7.50	451.00	7.70	472.00	8.00	431.00	7.20	451.00	7.20	451.00	7.20
376.00	11.90	502.00	4.10	502.00	7.00	502.00	6.40	502.00	6.70	451.00	6.90	500.00	6.90	500.00	6.90
401.00	10.70	527.00	4.70	553.00	1.50	552.00	5.80	502.00	5.40	401.00	6.90	426.00	6.90	426.00	6.90
427.00	9.80	558.00	4.60	577.00	1.00	577.00	3.30	577.00	3.30	551.00	5.00	551.00	5.00	551.00	5.00
452.00	7.90	558.00	2.90	602.00	1.00	603.00	1.40	576.00	1.40	576.00	1.00	577.00	1.00	577.00	1.00
477.00	7.80	579.00	0.90	628.00	-2.00	618.00	-2.10	603.00	-2.00	603.00	-2.90	603.00	-2.90	603.00	-2.90
502.00	6.10	603.00	1.00											603.00	-2.90
528.00	8.00	628.00	-1.10											603.00	-2.90
576.00	0.00	653.00	-6.60											603.00	-2.90
629.00	-2.00	653.00	-6.60											603.00	-2.90

LONG BEACH ISLAND N.J.
 DATUM IS NSL MEASUREMENT IS FT

PROFILE 11

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME			
660922	50	12:00	670505	52	12:00	670920	54	12:00	671218	55	12:00	680117	56	12:00	680227	57	12:00	680327	58	12:00
302.00	17.30	342.00	168.00	16.70	340.00	18.50	325.00	18.00	325.00	19.00	325.00	19.00	325.00	19.00	325.00	19.00	325.00	19.00	325.00	19.00
369.00	12.70	371.00	15.80	368.00	17.80	369.00	18.40	367.00	18.70	367.00	18.70	367.00	18.70	367.00	18.70	367.00	18.70	367.00	18.70	367.00
400.00	9.10	401.00	9.50	394.00	17.50	376.00	12.50	369.00	15.00	386.00	11.10	385.00	11.00	385.00	11.00	385.00	11.00	385.00	11.00	385.00
426.00	7.40	425.00	8.20	358.00	12.70	402.00	9.70	394.00	10.50	397.00	9.90	389.00	9.90	389.00	10.70	450.00	7.20	450.00	7.20	450.00
469.00	4.00	450.00	10.80	380.00	10.80	450.00	6.50	425.00	8.50	409.00	6.70	424.00	6.40	424.00	6.40	500.00	4.10	500.00	4.10	500.00
494.00	4.00	501.00	6.70	476.00	9.60	476.00	7.10	451.00	7.80	484.00	5.70	450.00	7.70	450.00	7.70	520.00	2.40	520.00	2.40	520.00
506.00	4.90	527.00	0.10	451.00	6.90	501.00	5.80	475.00	6.70	507.00	3.40	500.00	4.90	500.00	4.90	550.00	-1.50	550.00	-1.50	550.00
526.00	4.20	526.00	4.80	526.00	5.10	551.00	4.80	526.00	6.00	550.00	-0.70	525.00	5.30	525.00	5.30	575.00	-3.40	575.00	-3.40	575.00
551.00	2.40	577.00	1.20	576.00	1.20	576.00	-2.50	551.00	3.30	560.00	-1.80	550.00	-1.80	550.00	-1.80	575.00	-2.40	575.00	-2.40	575.00
577.00	1.30	577.00	-1.10	601.00	-1.10	601.00	-1.10	617.00	-2.70	600.00	-2.50	600.00	-1.70	600.00	-1.70	600.00	-1.70	600.00	-1.70	600.00
601.00	-4.80	601.00	-2.80	601.00	-2.80	601.00	-2.80	617.00	-2.70	600.00	-2.50	600.00	-1.70	600.00	-1.70	600.00	-1.70	600.00	-1.70	600.00

PROFILE 11

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME			
681009	59	12:00	681113	61	12:00	681218	62	12:00	690115	63	12:00	690214	64	12:00	690310	65	12:00	690328	66	12:00
325.00	19.00	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00
305.00	18.00	305.00	17.80	350.00	17.80	350.00	17.80	350.00	17.70	350.00	17.70	350.00	17.70	350.00	17.70	350.00	17.70	350.00	17.70	350.00
365.00	15.70	365.00	15.10	367.00	14.50	367.00	10.80	367.00	14.90	366.00	14.80	366.00	14.80	366.00	14.80	366.00	14.80	366.00	14.80	366.00
393.00	10.40	393.00	11.10	390.00	10.00	390.00	10.00	378.00	13.20	391.00	9.60	380.00	9.60	380.00	13.10	390.00	13.10	390.00	13.10	390.00
400.00	9.80	400.00	10.00	400.00	5.40	400.00	8.90	390.00	9.90	425.00	8.20	400.00	8.20	400.00	13.00	400.00	13.00	400.00	13.00	400.00
425.00	8.50	425.00	4.30	455.00	6.50	425.00	7.70	425.00	7.70	475.00	6.30	425.00	6.30	425.00	6.30	425.00	6.30	425.00	6.30	425.00
465.00	8.50	465.00	7.20	530.00	2.20	530.00	3.60	530.00	7.40	520.00	7.40	520.00	7.40	520.00	7.40	520.00	7.40	520.00	7.40	520.00
495.00	8.90	515.00	7.20	530.00	2.20	530.00	3.60	530.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00
495.00	8.90	515.00	7.20	530.00	2.20	530.00	3.60	530.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00	5.70	520.00
525.00	5.60	525.00	5.20	580.00	-0.80	580.00	-0.80	580.00	2.10	525.00	3.90	520.00	3.90	520.00	3.90	520.00	3.90	520.00	3.90	520.00
545.00	5.20	545.00	5.20	580.00	-0.80	580.00	-0.80	580.00	2.10	525.00	3.90	520.00	3.90	520.00	3.90	520.00	3.90	520.00	3.90	520.00
550.00	1.30	550.00	1.70	575.00	-1.10	575.00	-1.10	575.00	1.30	575.00	-1.10	600.00	-2.50	600.00	-2.50	600.00	-2.50	600.00	-2.50	600.00
550.00	-4.40	575.00	-1.70	575.00	-1.70	575.00	-1.70	575.00	-1.70	600.00	-2.50	600.00	-2.50	600.00	-2.50	600.00	-2.50	600.00	-2.50	600.00
600.00	-2.40	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00	-1.30	625.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 400204	DATE 601204	DATE 601108	DATE 601218	DATE 700120	DATE 700214	DATE 700319	DATE 700521
SVY 67	SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
325.00	19.70	325.00	19.30	325.00	19.40	325.00	307.00
330.00	19.20	300.00	19.30	300.00	303.00	303.00	376.00
340.00	18.40	325.00	19.30	325.00	303.00	303.00	376.00
340.00	18.40	355.00	18.30	364.00	367.00	367.00	460.00
375.00	11.20	349.00	11.10	375.00	10.40	390.00	424.00
392.00	10.00	400.00	10.20	393.00	10.60	400.00	464.00
420.00	9.30	425.00	9.40	418.00	9.70	450.00	500.00
450.00	9.50	450.00	9.50	437.00	7.00	482.00	550.00
475.00	6.30	460.00	9.60	460.00	8.00	500.00	6.50
500.00	3.60	475.00	8.30	475.00	5.50	550.00	1.50
525.00	1.80	500.00	5.30	500.00	5.70	550.00	1.50
575.00	0.00	525.00	1.90	525.00	1.90	550.00	1.50
600.00	-1.80	550.00	-2.50	575.00	-1.20	600.00	-1.50
	-3.10	600.00	-3.40	600.00	-2.30	655.00	-2.00

PROFILE 11

DATE 700828	DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710018
SVY 75	SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
325.00	19.60	325.00	19.50	325.00	19.70	325.00	324.00
330.00	19.70	335.00	18.40	350.00	20.20	360.00	370.00
370.00	19.20	350.00	19.40	350.00	18.50	368.00	375.00
375.00	13.70	360.00	18.50	375.00	18.40	400.00	400.00
400.00	11.40	400.00	18.40	400.00	18.40	400.00	400.00
450.00	9.80	450.00	18.30	450.00	18.30	450.00	450.00
492.00	7.50	492.00	17.70	450.00	6.00	550.00	5.30
500.00	6.50	525.00	3.00	478.00	-1.50	500.00	5.70
550.00	0.00	550.00	3.90	500.00	4.00	516.00	4.00
567.00	-2.00	600.00	-1.10	550.00	-1.10	550.00	2.10
578.00	-1.00	650.00	-1.60	500.00	4.20	575.00	-1.50
600.00	-3.80	700.00	-2.70	525.00	2.40	600.00	-1.50
650.00	-9.10	750.00	-5.00	550.00	0.90	600.00	-1.50
700.00	-13.00	800.00	-8.20	575.00	-0.90	600.00	-2.00

LONG BEACH ISLAND H.A.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 710624	DATE 710617	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720315
SVY 83	SVY 85	SVY 86	SVY 87	SVY 90	SVY 90	SVY 91	SVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
325.00	325.00	19.60	325.00	19.70	325.00	19.80	325.00
350.00	319.00	19.90	350.00	19.80	308.00	19.80	325.00
400.00	371.00	8.90	490.00	13.20	369.00	16.90	362.00
450.00	400.00	9.60	403.00	10.20	410.00	10.50	379.00
460.00	427.00	8.50	450.00	8.90	425.00	9.30	384.00
500.00	472.00	8.70	485.00	5.50	400.00	10.40	399.00
550.00	500.00	3.10	500.00	4.10	500.00	1.20	450.00
	550.00	1.50	500.00	4.10	550.00	1.20	450.00
	600.00	1.30	582.00	-3.80	601.00	8.30	532.00
	600.00	-2.70	580.00	4.70	600.00	-3.80	530.00
			530.00	-8.30			575.00
			575.00	-3.30			

PROFILE 11

DATE 720411	DATE 720423	DATE 721017	DATE 721205	DATE 730103	DATE 730213	DATE 740314	DATE 740325
SVY 92	SVY 93	SVY 94	SVY 95	SVY 96	SVY 97	SVY 98	SVY 99
TIME 1200	TIME 1300	TIME 1000	TIME 1100	TIME 1100	TIME 1100	TIME 1000	TIME 0900
325.00	325.00	20.00	325.00	19.80	325.00	19.70	325.00
340.00	316.00	18.70	350.00	19.40	338.00	19.80	325.00
358.00	379.00	18.70	370.00	19.40	372.00	16.90	375.00
389.00	400.00	9.00	400.00	10.20	392.00	12.70	395.00
400.00	400.00	10.20	450.00	10.20	400.00	10.90	405.00
422.00	450.00	9.60	458.00	6.60	450.00	5.90	450.00
430.00	480.00	9.20	475.00	5.90	500.00	2.00	450.00
450.00	480.00	6.70	500.00	3.60	550.00	-8.90	500.00
500.00	600.00	2.60	500.00	-2.00	585.00	-6.10	500.00
525.00	600.00	-1.20	578.00	-2.20	575.00	-2.80	541.00
			561.00	-2.70			

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
730013	100	730117	101	730612	103		
	1100		1300		1100		
	10		40		35		10
	125		125		10		50
	20		20		10		30
	318		318		360		17
	381		381		391		14
	390		390		400		11
	398		398		405		8
	432		432		467		7
	450		450		487		7
	475		475		500		5
	500		500		525		3
	550		550		550		2

PROFILE 12

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
620028	1	620028	2	621011	4	621029	6	621109	7	621210	8
	1200		1200		1200		1200		1200		1200
	15		15		16		16		16		17
	105		105		14		14		16		17
	34		34		30		30		33		33
	40		40		45		45		40		40
	72		72		66		66		66		67
	45		45		100		100		122		122
	195		195		125		125		135		135
	132		132		183		183		195		195
	150		150		207		207		226		226
	165		165		207		207		253		253
	185		185		262		262		262		262
	205		205		262		262		262		262
	285		285		285		285		324		324
	300		300		320		320		324		324
	320		320		320		320		324		324

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 12

DATE 630121	DATE 630128	DATE 630206	DATE 630212	DATE 630220	DATE 630226	DATE 640304	DATE 640311
SVY 10	SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 16	SVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
226+00	211+00	9+40	100+00	9+20	149+00	9+30	201+00
251+00	4+20	150+00	9+00	150+00	149+00	156+00	8+40
300+00	2+70	175+00	9+60	156+00	175+00	175+00	222+00
326+00	0+00	200+00	7+50	203+00	203+00	201+00	7+10
351+00	-1+60	300+00	4+30	180+00	2+90	211+00	7+00
		328+00	0+00	225+00	4+40	210+00	6+90
		351+00	-1+20	275+00	6+50	225+00	5+30
				275+00	1+60	251+00	3+40
				326+00	-0+80	274+00	2+80
						301+00	1+20
						325+00	-1+80
						301+00	1+20
						326+00	-0+70
						351+00	-1+70

PROFILE 12

DATE 630319	DATE 630326	DATE 630404	DATE 630528	DATE 630613	DATE 630625	DATE 640711	DATE 640723
SVY 18	SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
200+00	7+00	7+00	-1+00	14+50	225+00	7+30	74+00
225+00	5+00	5+00	26+00	16+90	250+00	6+30	100+00
251+00	2+80	251+00	76+00	16+00	275+00	4+20	151+00
279+00	0+80	261+00	76+00	10+50	321+00	0+80	201+00
301+00	-1+20	300+00	100+00	10+00	321+00	-0+00	221+00
		300+00	125+00	9+40	351+00	-1+00	221+00
		326+00	151+00	9+20	301+00	-0+00	250+00
		351+00	200+00	7+30	301+00	-0+00	275+00
			226+00	7+30			301+00
			251+00	5+70			301+00
			300+00	1+50			301+00
			351+00	-1+40			301+00

LONG BEACH ISLAND N.J.
 DATUM 15 MSL MEASUREMENT TS FT

PROFILE 12

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
630026	26	1200	610026	26	1200	611010	30	1200	611025	32	1200	611115	32	1200
630027	27	1200	610027	27	1200	611011	31	1200	611026	31	1200	611116	31	1200
630028	28	1200	610028	28	1200	611012	30	1200	611027	30	1200	611117	30	1200
630029	29	1200	610029	29	1200	611013	29	1200	611028	29	1200	611118	29	1200
630030	30	1200	610030	30	1200	611014	28	1200	611029	28	1200	611119	28	1200
630031	31	1200	610031	31	1200	611015	27	1200	611030	27	1200	611120	27	1200
630032	32	1200	610032	32	1200	611016	26	1200	611031	26	1200	611121	26	1200
630033	33	1200	610033	33	1200	611017	25	1200	611032	25	1200	611122	25	1200
630034	34	1200	610034	34	1200	611018	24	1200	611033	24	1200	611123	24	1200
630035	35	1200	610035	35	1200	611019	23	1200	611034	23	1200	611124	23	1200
630036	36	1200	610036	36	1200	611020	22	1200	611035	22	1200	611125	22	1200
630037	37	1200	610037	37	1200	611021	21	1200	611036	21	1200	611126	21	1200
630038	38	1200	610038	38	1200	611022	20	1200	611037	20	1200	611127	20	1200
630039	39	1200	610039	39	1200	611023	19	1200	611038	19	1200	611128	19	1200
630040	40	1200	610040	40	1200	611024	18	1200	611039	18	1200	611129	18	1200
630041	41	1200	610041	41	1200	611025	17	1200	611040	17	1200	611130	17	1200
630042	42	1200	610042	42	1200	611026	16	1200	611041	16	1200	611131	16	1200
630043	43	1200	610043	43	1200	611027	15	1200	611042	15	1200	611132	15	1200
630044	44	1200	610044	44	1200	611028	14	1200	611043	14	1200	611133	14	1200
630045	45	1200	610045	45	1200	611029	13	1200	611044	13	1200	611134	13	1200
630046	46	1200	610046	46	1200	611030	12	1200	611045	12	1200	611135	12	1200
630047	47	1200	610047	47	1200	611031	11	1200	611046	11	1200	611136	11	1200
630048	48	1200	610048	48	1200	611032	10	1200	611047	10	1200	611137	10	1200
630049	49	1200	610049	49	1200	611033	9	1200	611048	9	1200	611138	9	1200
630050	50	1200	610050	50	1200	611034	8	1200	611049	8	1200	611139	8	1200
630051	51	1200	610051	51	1200	611035	7	1200	611050	7	1200	611140	7	1200
630052	52	1200	610052	52	1200	611036	6	1200	611051	6	1200	611141	6	1200
630053	53	1200	610053	53	1200	611037	5	1200	611052	5	1200	611142	5	1200
630054	54	1200	610054	54	1200	611038	4	1200	611053	4	1200	611143	4	1200
630055	55	1200	610055	55	1200	611039	3	1200	611054	3	1200	611144	3	1200
630056	56	1200	610056	56	1200	611040	2	1200	611055	2	1200	611145	2	1200
630057	57	1200	610057	57	1200	611041	1	1200	611056	1	1200	611146	1	1200
630058	58	1200	610058	58	1200	611042	0	1200	611057	0	1200	611147	0	1200
630059	59	1200	610059	59	1200	611043	0	1200	611058	0	1200	611148	0	1200
630060	60	1200	610060	60	1200	611044	0	1200	611059	0	1200	611149	0	1200
630061	61	1200	610061	61	1200	611045	0	1200	611060	0	1200	611150	0	1200
630062	62	1200	610062	62	1200	611046	0	1200	611061	0	1200	611151	0	1200
630063	63	1200	610063	63	1200	611047	0	1200	611062	0	1200	611152	0	1200
630064	64	1200	610064	64	1200	611048	0	1200	611063	0	1200	611153	0	1200
630065	65	1200	610065	65	1200	611049	0	1200	611064	0	1200	611154	0	1200
630066	66	1200	610066	66	1200	611050	0	1200	611065	0	1200	611155	0	1200
630067	67	1200	610067	67	1200	611051	0	1200	611066	0	1200	611156	0	1200
630068	68	1200	610068	68	1200	611052	0	1200	611067	0	1200	611157	0	1200
630069	69	1200	610069	69	1200	611053	0	1200	611068	0	1200	611158	0	1200
630070	70	1200	610070	70	1200	611054	0	1200	611069	0	1200	611159	0	1200
630071	71	1200	610071	71	1200	611055	0	1200	611070	0	1200	611160	0	1200
630072	72	1200	610072	72	1200	611056	0	1200	611071	0	1200	611161	0	1200
630073	73	1200	610073	73	1200	611057	0	1200	611072	0	1200	611162	0	1200
630074	74	1200	610074	74	1200	611058	0	1200	611073	0	1200	611163	0	1200
630075	75	1200	610075	75	1200	611059	0	1200	611074	0	1200	611164	0	1200
630076	76	1200	610076	76	1200	611060	0	1200	611075	0	1200	611165	0	1200
630077	77	1200	610077	77	1200	611061	0	1200	611076	0	1200	611166	0	1200
630078	78	1200	610078	78	1200	611062	0	1200	611077	0	1200	611167	0	1200
630079	79	1200	610079	79	1200	611063	0	1200	611078	0	1200	611168	0	1200
630080	80	1200	610080	80	1200	611064	0	1200	611079	0	1200	611169	0	1200
630081	81	1200	610081	81	1200	611065	0	1200	611080	0	1200	611170	0	1200
630082	82	1200	610082	82	1200	611066	0	1200	611081	0	1200	611171	0	1200
630083	83	1200	610083	83	1200	611067	0	1200	611082	0	1200	611172	0	1200
630084	84	1200	610084	84	1200	611068	0	1200	611083	0	1200	611173	0	1200
630085	85	1200	610085	85	1200	611069	0	1200	611084	0	1200	611174	0	1200
630086	86	1200	610086	86	1200	611070	0	1200	611085	0	1200	611175	0	1200
630087	87	1200	610087	87	1200	611071	0	1200	611086	0	1200	611176	0	1200
630088	88	1200	610088	88	1200	611072	0	1200	611087	0	1200	611177	0	1200
630089	89	1200	610089	89	1200	611073	0	1200	611088	0	1200	611178	0	1200
630090	90	1200	610090	90	1200	611074	0	1200	611089	0	1200	611179	0	1200
630091	91	1200	610091	91	1200	611075	0	1200	611090	0	1200	611180	0	1200
630092	92	1200	610092	92	1200	611076	0	1200	611091	0	1200	611181	0	1200
630093	93	1200	610093	93	1200	611077	0	1200	611092	0	1200	611182	0	1200
630094	94	1200	610094	94	1200	611078	0	1200	611093	0	1200	611183	0	1200
630095	95	1200	610095	95	1200	611079	0	1200	611094	0	1200	611184	0	1200
630096	96	1200	610096	96	1200	611080	0	1200	611095	0	1200	611185	0	1200
630097	97	1200	610097	97	1200	611081	0	1200	611096	0	1200	611186	0	1200
630098	98	1200	610098	98	1200	611082	0	1200	611097	0	1200	611187	0	1200
630099	99	1200	610099	99	1200	611083	0	1200	611098	0	1200	611188	0	1200
630100	100	1200	610100	100	1200	611084	0	1200	611099	0	1200	611189	0	1200

PROFILE 12

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
640026	26	1200	620026	26	1200	621100	30	1200	621115	32	1200	621130	34	1200
640027	27	1200	620027	27	1200	621101	31	1200	621116	31	1200	621131	33	1200
640028	28	1200	620028	28	1200	621102	30	1200	621117	30	1200	621132	32	1200
640029	29	1200	620029	29	1200	621103	29	1200	621118	29	1200	621133	31	1200
640030	30	1200	620030	30	1200	621104	28	1200	621119	28	1200	621134	30	1200
640031	31	1200	620031	31	1200	621105	27	1200	621120	27	1200	621135	29	1200
640032	32	1200	620032	32	1200	621106	26	1200	621121	26	1200	621136	28	1200
640033	33	1200	620033	33	1200	621107	25	1200	621122	25	1200	621137	27	1200
640034	34	1200	620034	34	1200	621108	24	1200	621123	24	1200	621138	26	1200
640035	35	1200	620035	35	1200	621109	23	1200	621124	23	1200	621139	25	1200
640036	36	1200	620036	36	1200	621110	22	1200	621125	22	1200	621140	24	1200

LONG BEACH ISLAND No. J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 12

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME
641201	42	1200	650119	43	1200	650427	44	1200	650907	46	1200	651077	47	1200
14.00	92+00	10+50	07+00	19+80	50+00	18+90	47+00	20+00	51+00	17+90	-1+00	14+70	40+00	12+40
35+00	16+00	112+00	9+40	76+00	13+00	01+00	10+20	71+00	13+30	75+00	15+70	34+00	24+20	100+00
48+00	18+80	152+00	6+00	102+00	9+80	102+00	9+70	101+00	9+50	101+00	9+70	54+00	20+00	151+00
101+00	9+80	172+00	4+40	126+00	7+90	104+00	7+70	152+00	7+40	152+00	7+40	78+00	13+00	200+00
126+00	9+60	202+00	4+00	151+00	8+30	167+00	6+00	167+00	6+10	202+00	7+40	101+00	19+80	224+00
172+00	9+60	227+00	4+00	177+00	8+00	202+00	7+00	202+00	6+00	227+00	7+10	151+00	7+90	241+00
202+00	7+70	303+00	-8+00	202+00	6+80	227+00	7+40	218+00	6+00	227+00	7+10	151+00	7+90	241+00
227+00	7+70	328+00	-8+20	202+00	1+50	232+00	5+90	218+00	1+50	232+00	5+90	151+00	7+90	241+00
303+00	7+70	353+00	-1+70	275+00	1+50	303+00	-1+90	328+00	-1+90	353+00	-1+90	151+00	7+90	241+00
328+00	-1+00			303+00	-1+70	320+00	-1+50	353+00	-2+50	400+00	-3+20	274+00	5+40	352+00

PROFILE 12

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME
660922	50	1200	670116	51	1200	670505	52	1200	670920	50	1200	671218	55	1200
150+00	7+80	50+00	20+90	30+00	40+00	20+30	40+00	20+50	35+00	20+00	20+90	0+00	15+80	47+00
221+00	6+70	70+00	10+70	54+00	73+00	19+80	14+90	54+00	20+80	75+00	13+80	30+00	21+90	57+00
251+00	6+30	100+00	10+70	76+00	10+60	95+00	10+80	80+00	13+00	100+00	10+60	54+00	21+90	86+00
277+00	3+30	126+00	9+70	95+00	11+20	151+00	8+90	201+00	8+50	151+00	8+90	81+00	12+90	160+00
302+00	1+70	151+00	8+40	151+00	8+40	201+00	8+10	224+00	7+30	251+00	6+30	100+00	10+00	192+00
327+00	-0+20	200+00	7+50	200+00	8+10	224+00	7+50	251+00	6+80	301+00	1+00	200+00	6+70	240+00
351+00	-1+50	227+00	7+50	251+00	6+80	301+00	2+10	342+00	-2+00	350+00	-3+00	200+00	6+70	240+00

LONG BEACH ISLAND N.J.
 DATUM IS WSL MEASUREMENT IS FT

PROFILE 12

DATE 601009	DATE 601023	DATE 601113	DATE 601218	DATE 600115	DATE 600213	DATE 600304	DATE 600528
SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64	SRVY 65	SRVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
30.00 20.80	58.00 21.00	25.00 20.20	45.00 20.70	35.00 21.10	35.00 21.50	54.00 19.90	37.00 22.10
55.00 21.10	55.00 21.20	55.00 21.00	60.00 20.00	58.00 20.50	58.00 20.70	76.00 15.90	57.00 20.00
75.00 17.00	75.00 15.30	75.00 14.90	70.00 17.70	70.00 17.90	83.00 19.00	87.00 13.00	75.00 19.30
95.00 11.00	95.00 11.30	100.00 11.20	80.00 14.20	80.00 14.00	100.00 11.00	100.00 11.00	100.00 11.00
150.00 4.90	150.00 4.00	150.00 7.60	100.00 11.20	100.00 11.20	150.00 6.00	125.00 8.90	150.00 0.80
200.00 4.70	200.00 9.00	200.00 6.80	150.00 7.80	150.00 7.70	200.00 6.50	175.00 7.00	250.00 6.20
230.00 7.80	230.00 5.40	250.00 6.40	200.00 6.40	200.00 6.30	200.00 6.50	200.00 7.00	250.00 6.20
275.00 3.50	275.00 5.60	300.00 3.30	275.00 3.00	275.00 4.30	275.00 4.00	200.00 7.10	275.00 6.10
320.00 2.70	320.00 3.70	350.00 0.10	275.00 2.10	275.00 4.40	300.00 2.80	231.00 7.10	245.00 6.10
350.00 0.20	350.00 4.50		325.00 0.00	300.00 2.80	325.00 1.00	250.00 5.20	
			350.00 0.00	350.00 0.10	350.00 0.60	300.00 2.30	
			375.00 0.00	375.00 0.00	375.00 0.00	350.00 0.00	

PROFILE 12

DATE 600924	DATE 601020	DATE 601118	DATE 601218	DATE 700120	DATE 700216	DATE 700319	DATE 700521
SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73	SRVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00 19.50	0.00 15.10	40.00 20.50	0.00 15.20	0.00 15.20	33.00 20.00	39.00 20.70	01.00 20.00
50.00 20.00	41.00 20.60	49.00 20.20	45.00 20.50	41.00 17.70	60.00 19.70	47.00 20.00	45.00 12.00
75.00 15.00	94.00 20.20	100.00 11.80	45.00 20.60	38.00 20.60	80.00 15.70	81.00 15.00	150.00 9.50
100.00 11.00	94.00 12.00	120.00 10.00	100.00 12.00	47.00 20.50	100.00 12.00	100.00 12.10	200.00 4.00
125.00 9.50	125.00 9.60	150.00 9.50	119.00 9.80	100.00 12.20	150.00 9.70	117.00 10.10	250.00 7.70
140.00 9.50	150.00 9.50	175.00 9.70	150.00 9.50	115.00 10.60	200.00 8.80	150.00 9.50	300.00 1.50
180.00 9.80	175.00 9.70	200.00 8.50	180.00 9.50	132.00 9.70	250.00 3.80	200.00 9.10	350.00 0.20
200.00 9.10	200.00 7.40	225.00 8.50	200.00 7.50	150.00 9.70	300.00 3.00	200.00 8.00	
225.00 4.90	230.00 8.60	250.00 8.40	229.00 7.50	176.00 9.50	350.00 0.20	275.00 2.00	
250.00 3.10	241.00 7.00	290.00 8.40	245.00 7.00	232.00 7.70	375.00 0.00	300.00 0.00	
275.00 1.40	260.00 6.50	300.00 8.30	271.00 6.20	250.00 6.40			
300.00 0.50	275.00 4.50	325.00 8.20	300.00 3.10	280.00 6.40			
315.00 0.00	300.00 2.10	350.00 0.00	325.00 0.10	300.00 6.20			
325.00 0.00	325.00 0.10	350.00 0.00	350.00 0.00	350.00 0.00			
350.00 0.00	350.00 0.00	375.00 0.00	375.00 0.00	375.00 0.00			
375.00 0.00	375.00 0.00	375.00 0.00	375.00 0.00	375.00 0.00			
400.00 0.00	375.00 0.00	375.00 0.00	375.00 0.00	375.00 0.00			
	400.00 0.00	400.00 0.00	400.00 0.00	400.00 0.00			
	425.00 0.00	425.00 0.00	425.00 0.00	425.00 0.00			
	450.00 0.00	450.00 0.00	450.00 0.00	450.00 0.00			

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 12

DATE 70022R	DATE 701017	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710508	DATE 710508
SVY 75	SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY #2
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	45.00	0.00	0.00	15.50	0.00	15.30	0.00
42.00	110.00	25.00	19.90	25.00	36.00	20.60	45.00
100.00	150.00	12.00	42.00	20.70	44.00	20.40	55.00
150.00	200.00	9.30	100.00	68.00	73.00	17.60	100.00
200.00	250.00	8.40	75.00	172.00	102.00	11.00	113.00
240.00	275.00	3.90	300.00	9.00	112.00	10.80	125.00
250.00	300.00	1.50	420.00	185.00	120.00	9.60	130.00
270.00	300.00	0.80	125.00	200.00	120.00	9.60	170.00
310.00	330.00	0.50	175.00	250.00	120.00	9.60	170.00
332.00	375.00	-2.80	125.00	250.00	200.00	5.50	205.00
340.00	-2.50	-1.80	165.00	9.30	250.00	2.50	275.00
400.00	-2.60	-1.60	200.00	8.50	300.00	-0.90	300.00
450.00	-3.10	-2.60	225.00	6.20	325.00	-2.50	325.00
500.00	-4.00	-3.60	250.00	5.40	350.00	-2.40	340.00
550.00	-4.60	-4.60	275.00	4.60			
			300.00	1.70			
			325.00	-1.20			

PROFILE 12

DATE 710620	DATE 710817	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720315
SVY 83	SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	15.70	0.00	0.00	15.70	0.00	15.70	0.00
43.00	20.80	42.00	15.90	36.00	43.00	20.90	43.00
61.00	16.00	50.00	10.60	48.00	92.00	15.00	72.00
100.00	12.00	115.00	112.00	100.00	100.00	13.20	100.00
150.00	8.20	200.00	8.40	116.00	110.00	10.70	120.00
200.00	4.30	237.00	7.60	150.00	110.00	9.20	150.00
228.00	4.40	276.00	7.00	200.00	200.00	6.70	200.00
250.00	3.50	300.00	7.20	200.00	210.00	6.40	210.00
300.00	-2.40	350.00	-3.20	275.00	210.00	4.60	275.00
				275.00	300.00	4.30	300.00
				300.00	350.00	3.70	350.00
				315.00	350.00	-2.70	317.00
				315.00	-2.50		

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE 620026	DATE 620024	DATE 620023	DATE 621029	DATE 621108	DATE 621210	DATE 630115
SVY 1	SVY 2	SVY 5	SVY 6	SVY 7	SVY 8	SVY 9
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
33.00	101.60	8.60	55.00	14.00	22.00	12.20
57.00	115.00	7.70	78.00	13.40	21.00	10.00
65.00	119.20	7.80	75.00	13.80	19.00	10.00
70.00	124.00	5.40	98.00	9.10	16.00	16.00
75.00	129.00	3.90	121.00	8.50	18.00	14.10
80.00	134.00	2.50	143.00	8.00	231.00	15.00
80.00	139.00	1.10	165.00	6.70	200.00	17.00
80.00	144.00	0.60	188.00	5.80	160.00	20.00
80.00	149.00	0.10	211.00	5.00	100.00	225.00
80.00	154.00	0.40	234.00	2.00	50.00	275.00
103.00	159.00	0.70	258.00	0.20	20.00	300.00
125.00	164.00	0.40	281.00	0.50	10.00	326.00
146.00	169.00	0.20	304.00	0.20	5.00	350.00
167.00	174.00	0.40	328.00	0.20	0.00	376.00
188.00	179.00	0.20	352.00	0.00	0.00	401.00
209.00	184.00	0.40	376.00	0.00	0.00	426.00
230.00	189.00	0.20	400.00	0.00	0.00	451.00
235.00	194.00	0.40	424.00	0.00	0.00	476.00

PROFILE 13

DATE 630121	DATE 630204	DATE 630212	DATE 630220	DATE 630224	DATE 630308	DATE 630411
SVY 10	SVY 02	SVY 13	SVY 14	SVY 16	SVY 18	SVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
228.00	8.70	165.00	10.80	202.00	7.90	167.00
248.00	8.90	166.00	9.20	226.00	6.90	170.00
275.00	9.30	189.00	9.00	250.00	6.50	201.00
300.00	9.30	190.00	8.50	276.00	6.40	226.00
350.00	9.40	200.00	7.80	302.00	5.00	251.00
400.00	9.40	250.00	6.90	328.00	2.90	274.00
451.00	9.40	287.00	5.70	376.00	1.90	301.00
		301.00	4.70	401.00	1.30	325.00
		350.00	1.70	451.00	0.50	351.00
		376.00	0.60	476.00	0.00	376.00
		425.00	0.20	500.00	0.00	401.00
		450.00	0.20	524.00	0.00	426.00

LONG REACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE 630519	DATE 630520	DATE 630521	DATE 630522	DATE 630523	DATE 630524	DATE 630525	DATE 630711	DATE 630725
SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-11.00	12.00	22.00	8.00	151.00	12.00	8.00	100.00	75.00
50.00	12.00	25.00	5.00	167.00	12.30	151.00	124.00	100.00
100.00	13.00	30.00	2.00	229.00	6.00	75.00	124.00	100.00
120.00	13.00	30.00	2.00	251.00	6.00	75.00	151.00	117.00
145.00	13.50	37.00	-1.50	276.00	5.00	100.00	176.00	149.00
187.00	9.00			301.00	3.20	124.00	201.00	175.00
205.00	5.20			376.00	2.20	175.00	227.00	211.00
276.00	2.00			530.00	-1.00	201.00	251.00	214.00
301.00	1.00			576.00	0.00	201.00	281.00	275.00
352.00	1.50			376.00	1.50	301.00	276.00	301.00
376.00	-1.50			351.00	-1.50	351.00	276.00	328.00

PROFILE 13

DATE 630606	DATE 630906	DATE 630926	DATE 631010	DATE 631024	DATE 631115	DATE 631227
SVY 26	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	12.30	70.00	14.00	-1.00	12.00	0.00
50.00	13.10	125.00	8.00	24.00	12.10	14.00
75.00	14.50	151.00	7.00	51.00	13.40	15.00
100.00	11.50	178.00	7.00	74.00	11.00	60.00
127.00	8.00	203.00	8.10	101.00	9.00	78.00
151.00	7.50	227.00	5.00	126.00	8.90	121.00
177.00	7.00	250.00	2.00	177.00	9.30	152.00
201.00	7.20	281.00	0.00	177.00	8.30	178.00
226.00	5.50	301.00	-0.00	203.00	6.40	202.00
251.00	2.00	303.00	0.00	226.00	-1.10	230.00
276.00	2.00	305.00	0.00	250.00	5.90	253.00
301.00	-1.20			276.00	1.70	280.00
				280.00	0.00	302.00
					-0.00	

LONG BEACH ISLAND N.W.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	
-101.00	8.70	60.00	13.00	14.00	12.60	13.00	12.20	15.00	12.20	14.00	12.20	14.00	12.20	14.00	12.20	14.00	12.20	14.00	12.20	14.00	12.20
-124.00	10.00	75.00	13.10	54.00	16.10	25.00	13.60	26.00	14.10	09.00	14.00	50.00	14.00	50.00	14.00	50.00	14.00	50.00	14.00	50.00	14.00
-151.00	10.00	101.00	9.90	74.00	14.20	65.00	14.30	61.00	17.50	61.00	14.60	63.00	14.60	63.00	14.60	63.00	14.60	63.00	14.60	63.00	14.60
-181.00	11.00	151.00	8.70	101.00	11.00	76.00	15.10	60.00	18.20	74.00	14.60	102.00	14.60	102.00	14.60	102.00	14.60	102.00	14.60	102.00	14.60
0.00	11.00	201.00	5.80	152.00	7.90	102.00	11.10	77.00	14.70	101.00	10.90	152.00	10.90	152.00	10.90	152.00	10.90	152.00	10.90	152.00	10.90
14.00	12.00	227.00	6.70	177.00	9.00	126.00	9.00	102.00	11.00	152.00	11.00	176.00	11.00	176.00	11.00	176.00	11.00	176.00	11.00	176.00	11.00
36.00	15.10	237.00	6.70	202.00	6.90	177.00	7.50	177.00	7.90	178.00	8.90	202.00	8.90	202.00	8.90	202.00	8.90	202.00	8.90	202.00	8.90
59.00	17.20	279.00	3.70	228.00	6.50	203.00	6.50	177.00	7.20	178.00	7.20	202.00	7.20	202.00	7.20	202.00	7.20	202.00	7.20	202.00	7.20
76.00	10.60	303.00	2.00	278.00	2.30	227.00	4.00	227.00	6.90	227.00	8.60	229.00	8.60	229.00	8.60	229.00	8.60	229.00	8.60	229.00	8.60
101.00	8.90	352.00	7.60	304.00	0.00	278.00	4.60	227.00	7.40	252.00	5.80	271.00	5.80	271.00	5.80	271.00	5.80	271.00	5.80	271.00	5.80
127.00	7.80	352.00	0.70	346.00	0.00	303.00	1.80	278.00	1.80	276.00	1.70	251.00	1.70	251.00	1.70	251.00	1.70	251.00	1.70	251.00	1.70
153.00	7.80	380.00	0.10	354.00	0.00	303.00	0.10	276.00	0.60	303.00	0.60	303.00	0.60	303.00	0.60	303.00	0.60	303.00	0.60	303.00	0.60
202.00	3.60	400.00	-1.00	379.00	-1.60	328.00	-0.60	328.00	0.70	328.00	0.70	328.00	0.70	328.00	0.70	328.00	0.70	328.00	0.70	328.00	0.70
227.00	3.60	420.00	-2.20	350.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10	363.00	-2.10
252.00	3.60	450.00	0.00	350.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00	363.00	0.00
278.00	3.60	480.00	0.00	381.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00	404.00	0.00
303.00	3.60	510.00	0.00	428.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00	468.00	0.00
328.00	3.60	540.00	0.00	458.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00	498.00	0.00
353.00	3.60	570.00	0.00	488.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00	528.00	0.00
379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70	379.00	-0.70
430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40	430.00	-2.40

PROFILE 13

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	
46.00	11.00	85.00	11.20	62.00	14.00	65.00	19.00	62.00	14.00	62.00	14.00	62.00	14.00	62.00	14.00	62.00	14.00	62.00	14.00	62.00	14.00
54.00	17.90	101.00	11.20	80.00	11.50	104.00	11.80	67.00	17.90	67.00	17.90	67.00	17.90	67.00	17.90	67.00	17.90	67.00	17.90	67.00	17.90
62.00	14.70	129.00	9.10	101.00	10.20	152.00	8.10	101.00	15.20	101.00	15.20	101.00	15.20	101.00	15.20	101.00	15.20	101.00	15.20	101.00	15.20
120.00	9.20	172.00	5.60	151.00	7.60	177.00	6.50	152.00	7.60	152.00	7.60	152.00	7.60	152.00	7.60	152.00	7.60	152.00	7.60	152.00	7.60
152.00	8.00	202.00	4.90	203.00	6.00	203.00	6.20	202.00	6.00	202.00	6.00	202.00	6.00	202.00	6.00	202.00	6.00	202.00	6.00	202.00	6.00
177.00	9.00	253.00	3.90	253.00	4.90	253.00	7.10	253.00	7.40	253.00	7.40	253.00	7.40	253.00	7.40	253.00	7.40	253.00	7.40	253.00	7.40
203.00	9.00	303.00	2.80	303.00	2.90	328.00	7.70	277.00	4.90	354.00	4.80	354.00	4.80	354.00	4.80	354.00	4.80	354.00	4.80	354.00	4.80
215.00	9.50	354.00	1.80	380.00	0.00	380.00	1.50	380.00	2.70	378.00	2.40	378.00	2.40	378.00	2.40	378.00	2.40	378.00	2.40	378.00	2.40
278.00	7.20	379.00	0.80	419.00	-0.20	404.00	-1.70	404.00	-0.20	404.00	-0.20	404.00	-0.20	404.00	-0.20	404.00	-0.20	404.00	-0.20	404.00	-0.20
303.00	3.00	430.00	0.10	468.00	0.00	468.00	-0.20	468.00	-0.20	468.00	-0.20	468.00	-0.20	468.00	-0.20	468.00	-0.20	468.00	-0.20	468.00	-0.20

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
680022	50	1200	670118	51	1200	670505	52	1200	670920	54	1200	680117	55	1200
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME
744.00	14.40	50.00	37.00	17.50	0.00	16.20	100.00	12.00	100.00	12.00	100.00	12.50	100.00	12.40
844.00	14.40	60.00	40.00	18.20	15.00	17.00	150.00	4.60	150.00	8.90	151.00	4.80	150.00	8.50
1000.00	12.20	60.00	43.00	17.20	60.00	17.40	201.00	6.60	200.00	6.30	199.00	4.00	180.00	6.00
151.00	8.50	101.00	12.70	12.80	74.00	13.50	251.00	3.50	250.00	5.10	250.00	4.00	180.00	6.00
201.00	8.50	150.00	8.20	150.00	7.60	115.00	301.00	0.60	300.00	-2.00	299.00	2.40	150.00	6.90
214.00	5.40	201.00	7.30	201.00	5.10	131.00	400.00	-2.40	399.00	-3.50	398.00	1.50	100.00	12.40
230.00	4.00	277.00	4.00	301.00	1.90	181.00	5.90							
250.00	4.00	301.00	1.20	326.00	1.20	215.00	5.40							
328.00	3.50	101.00	2.80	326.00	1.70	256.00	6.10							
352.00	4.50	127.00	2.70	352.00	-1.40	282.00	6.10							
377.00	4.40	352.00	-0.50			332.00	3.70							
403.00	1.40					357.00	-2.00							

PROFILE 15

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
680100	50	1200	681023	50	1200	681113	50	1200	681218	51	1200	690213	55	1200
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME
150.00	9.30	150.00	9.20	150.00	8.70	150.00	9.00	7.60	150.00	9.10	150.00	9.40	150.00	14.40
200.00	7.40	200.00	7.40	200.00	5.60	200.00	6.40	200.00	7.60	200.00	6.20	200.00	5.10	15.00
250.00	7.10	250.00	7.50	250.00	3.60	250.00	6.10	250.00	6.10	250.00	7.10	250.00	2.90	93.00
277.00	7.40	255.00	7.50	300.00	3.00	300.00	4.50	300.00	3.30	300.00	3.40	300.00	2.60	125.00
278.00	5.60	257.00	5.50	350.00	1.50	350.00	-4.30	350.00	-1.70	350.00	-1.00	350.00	1.50	150.00
300.00	3.60	300.00	1.80	400.00	-1.20	400.00	-4.40	400.00	-4.70	400.00	-3.70	400.00	-1.00	200.00
350.00	1.10	350.00	-0.50											275.00
														300.00
														340.00
														380.00
														400.00
														430.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE 650128	DATE 650204	DATE 650212	DATE 650220	DATE 650226	DATE 650304	DATE 650311	DATE 650319
SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 16	SVY 17	SVY 18
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
192.00	191.00	229.00	8.60	235.00	8.00	175.00	11.70
9.00	15.70	8.40	300.00	274.00	5.20	200.00	10.10
8.50	9.50	6.40	300.00	3.00	274.00	325.00	2.70
235.00	204.00	250.00	1.50	302.00	0.40	226.00	8.20
251.00	6.00	8.40	276.00	5.40	325.00	0.40	351.00
275.00	3.00	250.00	6.50	301.00	1.40	251.00	7.00
300.00	2.40	300.00	2.10	325.00	1.90	374.00	5.70
352.00	-1.20	324.00	4.80	376.00	-1.10	401.00	-1.70
						325.00	2.50
						376.00	0.40
						401.00	-1.40

PROFILE 14

DATE 650526	DATE 650604	DATE 650528	DATE 650613	DATE 650625	DATE 650711	DATE 650723	DATE 650804
SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
225.00	139.00	119.00	7.40	200.00	9.40	225.00	9.40
7.20	161.00	10.70	245.00	6.00	223.00	8.30	251.00
298.00	3.00	204.00	250.00	6.00	276.00	7.30	276.00
325.00	1.50	200.00	7.40	136.00	1.70	276.00	6.50
352.00	9.00	251.00	6.50	286.00	6.20	301.00	5.30
380.00	-0.10	275.00	6.50	182.00	1.30	325.00	2.00
						301.00	2.40
						376.00	2.40
						401.00	-0.40
						376.00	1.40
						377.00	-1.40

LONG BEACH ISLAND N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 14

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
200.00	9.20	200.00	6.40	200.00	7.00	202.00	10.00	17.50	101.00	14.50	101.00	14.50	101.00	14.50
201.00	9.10	201.00	2.50	202.00	6.40	251.00	5.80	16.50	117.00	14.50	117.00	14.50	117.00	14.50
278.00	1.30	278.00	17.50	279.00	7.10	279.00	4.20	9.10	141.00	14.00	141.00	14.00	141.00	14.00
353.00	1.40	353.00	2.70	304.00	5.40	304.00	2.00	22.50	177.00	11.40	177.00	11.40	177.00	11.40
382.00	-2.10	377.00	1.40	304.00	7.00	304.00	4.00	25.20	203.00	9.40	203.00	9.40	203.00	9.40
		001.00	1.10	304.00	4.40	354.00	-0.60	4.20	252.00	6.30	252.00	6.30	252.00	6.30
				304.00	4.30	354.00	-4.50	301.00	278.00	0.30	278.00	0.30	278.00	0.30
				330.00	3.30	380.00	-1.10	328.00	303.00	5.30	303.00	5.30	303.00	5.30
				400.00	-0.40	400.00	-0.40	354.00	359.00	1.10	359.00	1.10	359.00	1.10
								182.00	102.00	102.00	102.00	102.00	102.00	102.00
								182.00	16.10	16.10	16.10	16.10	16.10	16.10
								184.00	13.00	13.00	13.00	13.00	13.00	13.00
								184.00	10.40	10.40	10.40	10.40	10.40	10.40
								203.00	9.40	9.40	9.40	9.40	9.40	9.40
								253.00	2.70	2.70	2.70	2.70	2.70	2.70
								279.00	2.30	2.30	2.30	2.30	2.30	2.30
								329.00	2.40	2.40	2.40	2.40	2.40	2.40
								354.00	4.60	4.60	4.60	4.60	4.60	4.60
								405.00	-1.30	-1.30	-1.30	-1.30	-1.30	-1.30
								429.00	-2.30	-2.30	-2.30	-2.30	-2.30	-2.30
								454.00	-4.50	-4.50	-4.50	-4.50	-4.50	-4.50

LONG REACH ISLAND N.J.
DATHIM IS HSL MEASUREMENT TS FT

PROFILE 14

DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME
67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A	67011A
51	52	53	54	55	56	57	58	59	60	61	62	63	64
194+00	172+00	138+00	181+00	191+00	192+00	137+00	184+00	137+00	184+00	137+00	184+00	137+00	184+00
142+00	162+00	140+00	193+00	187+00	187+00	148+00	189+00	148+00	189+00	148+00	189+00	148+00	189+00
174+00	127+00	163+00	183+00	182+00	182+00	158+00	182+00	158+00	182+00	158+00	182+00	158+00	182+00
204+00	84+00	170+00	133+00	205+00	10+30	250+00	7+00	242+00	12+00	242+00	12+00	242+00	12+00
222+00	5+00	298+00	8+00	251+00	7+00	304+00	5+00	290+00	11+00	286+00	11+00	286+00	11+00
252+00	6+00	265+00	6+00	328+00	2+00	368+00	3+00	309+00	6+00	300+00	6+00	300+00	6+00
301+00	6+30	304+00	5+00	325+00	5+30	351+00	4+00	340+00	3+00	339+00	3+00	339+00	3+00
326+00	2+20	351+00	3+00	425+00	4+90	422+00	-8+00	450+00	-1+00	450+00	-1+00	450+00	-1+00
402+00	3+00	376+00	1+30	402+00	1+10	427+00	-1+70	450+00	-2+50	450+00	-2+50	450+00	-2+50
418+00	4+20	401+00	2+00	452+00	-1+50	452+00	-1+50	525+00	-1+20	525+00	-1+20	525+00	-1+20

PROFILE 14

DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME	DATE SVUY TIME
68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J	68102J
60	61	62	63	64	65	66	67	68	69	70	71	72	73
137+00	17+00	125+00	18+50	137+00	19+10	137+00	19+00	137+00	19+00	137+00	19+00	137+00	19+00
147+00	17+70	146+00	18+70	148+00	19+00	147+00	18+00	148+00	18+00	148+00	18+00	148+00	18+00
160+00	17+20	165+00	18+00	163+00	18+00	162+00	16+90	163+00	16+90	163+00	16+90	163+00	16+90
185+00	13+10	210+00	9+90	183+00	12+40	183+00	12+50	203+00	11+50	185+00	12+00	191+00	11+40
210+00	10+10	250+00	6+00	200+00	10+70	205+00	10+00	218+00	9+10	203+00	11+00	200+00	9+10
225+00	8+50	300+00	4+00	225+00	4+20	218+00	4+00	250+00	7+00	215+00	8+20	250+00	7+00
250+00	7+00	350+00	3+00	250+00	6+90	225+00	6+00	300+00	6+00	250+00	6+00	300+00	6+00
300+00	7+20	400+00	2+00	300+00	6+20	300+00	6+20	335+00	4+90	300+00	6+20	335+00	4+90
335+00	5+70	450+00	2+50	350+00	5+20	336+00	6+00	356+00	4+10	350+00	3+50	362+00	3+00
370+00	4+20	475+00	2+00	370+00	7+00	370+00	3+00	400+00	1+00	400+00	2+00	450+00	1+00
400+00	3+20	425+00	2+00	425+00	7+00	425+00	1+00	450+00	-2+00	450+00	-2+00	450+00	-2+00
425+00	1+70	450+00	-1+00	425+00	-2+00	450+00	-2+00	450+00	-2+00	450+00	-2+00	450+00	-2+00
450+00	4+30	475+00	-2+00	475+00	-2+00	475+00	-2+00	475+00	-2+00	475+00	-2+00	475+00	-2+00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE 14

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
760120	691118	691218	700120	700214	700310	700321	700321	700321	700321	700321	700321	700321	700321	700321	700321	700321	700321
SVY 76	SVY 69	SVY 78	SVY 79	SVY 75	SVY 81	SVY 80	SVY 80	SVY 81	SVY 81	SVY 81	SVY 82	SVY 82	SVY 82	SVY 82	SVY 82	SVY 82	SVY 82
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
117.00	15.10	117.00	14.50	117.00	15.30	117.00	14.70	117.00	14.70	117.00	14.90	117.00	14.90	117.00	14.90	117.00	15.50
150.00	17.90	139.00	17.30	149.00	18.20	138.00	17.40	161.00	17.40	161.00	18.70	161.00	18.70	161.00	18.70	161.00	18.00
165.00	18.20	162.00	17.80	164.00	17.70	150.00	18.50	169.00	18.50	169.00	19.50	169.00	19.50	169.00	19.50	169.00	19.50
200.00	11.70	210.00	10.20	204.00	12.20	210.00	16.50	211.00	16.50	211.00	10.00	220.00	10.00	220.00	10.00	220.00	4.70
225.00	9.30	250.00	8.50	214.00	10.30	210.00	18.30	187.00	18.30	187.00	10.00	220.00	10.00	220.00	10.00	220.00	4.70
250.00	8.20	297.00	5.50	214.00	8.90	250.00	6.50	200.00	6.50	200.00	7.50	250.00	7.50	250.00	7.50	250.00	8.10
300.00	9.40	378.00	4.10	307.00	7.10	300.00	6.00	300.00	6.00	300.00	7.30	300.00	7.30	300.00	7.30	300.00	8.10
325.00	6.60	400.00	2.60	310.00	7.20	398.00	4.20	300.00	4.20	300.00	7.70	300.00	7.70	300.00	7.70	300.00	7.80
350.00	3.10	425.00	1.90	330.00	5.60	450.00	5.80	350.00	5.80	350.00	6.50	400.00	6.50	400.00	6.50	400.00	4.90
375.00	2.90	450.00	1.20	375.00	4.60	450.00	1.50	400.00	1.50	400.00	2.60	450.00	2.60	450.00	2.60	450.00	4.90
400.00	1.20	475.00	0.60	425.00	3.60	520.00	0.50	500.00	0.50	500.00	2.40	550.00	2.40	550.00	2.40	550.00	2.80
425.00	1.20	500.00	0.30	475.00	1.70	552.00	0.70	525.00	0.70	525.00	1.50	550.00	1.50	550.00	1.50	550.00	1.00
450.00	-2.10	500.00	-1.00	535.00	-1.00	552.00	-1.70	571.00	-1.70	571.00	-2.00	550.00	-2.00	550.00	-2.00	550.00	-2.40
475.00	-2.60	535.00	-2.40	535.00	-2.40	552.00	-2.40	571.00	-2.40	571.00	-2.00	550.00	-2.00	550.00	-2.00	550.00	-2.40
500.00	-3.70	535.00	-3.70	535.00	-3.70	552.00	-3.70	571.00	-3.70	571.00	-2.00	550.00	-2.00	550.00	-2.00	550.00	-2.40

PROFILE 14

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
760120	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218	701218
SVY 76	SVY 77	SVY 78	SVY 79	SVY 79	SVY 79	SVY 80	SVY 80	SVY 80	SVY 80	SVY 81	SVY 81	SVY 81	SVY 82	SVY 82	SVY 82	SVY 82	SVY 82
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
117.00	15.30	117.00	15.30	117.00	15.30	117.00	14.40	117.00	14.40	117.00	14.40	117.00	14.70	117.00	14.70	117.00	15.70
139.00	17.80	150.00	16.40	139.00	19.20	139.00	18.80	161.00	18.80	161.00	18.80	161.00	18.80	161.00	18.80	161.00	18.40
150.00	19.30	150.00	19.60	167.00	19.20	150.00	19.00	155.00	19.00	155.00	18.50	150.00	19.30	150.00	19.30	150.00	18.40
200.00	13.40	200.00	14.00	159.00	20.10	200.00	13.90	150.00	13.90	150.00	16.70	183.00	17.20	183.00	17.20	183.00	15.30
235.00	9.10	250.00	8.00	175.00	17.80	223.00	9.90	200.00	9.90	200.00	13.90	180.00	14.00	180.00	14.00	200.00	7.70
250.00	8.40	300.00	7.50	225.00	14.00	250.00	8.60	204.00	8.60	204.00	13.50	210.00	13.70	210.00	13.70	200.00	6.60
300.00	7.70	350.00	6.00	225.00	9.90	300.00	6.10	225.00	6.10	225.00	11.10	225.00	9.90	225.00	9.90	350.00	6.60
302.00	6.40	400.00	2.70	250.00	8.40	323.00	5.40	250.00	5.40	250.00	8.20	275.00	6.10	275.00	6.10	400.00	5.70
350.00	6.20	450.00	2.10	275.00	7.20	360.00	6.70	300.00	6.70	300.00	7.10	300.00	6.40	300.00	6.40	450.00	4.30
400.00	2.40	460.00	2.70	325.00	6.00	400.00	4.20	325.00	4.20	325.00	5.20	350.00	4.60	350.00	4.60	450.00	4.30
450.00	1.30	460.00	2.70	375.00	5.00	450.00	3.30	350.00	3.30	350.00	3.30	350.00	2.60	350.00	2.60	450.00	4.30
500.00	0.60	450.00	4.90	430.00	4.90	450.00	4.70	400.00	4.70	400.00	2.70	500.00	2.60	500.00	2.60	450.00	4.30
525.00	5.20	450.00	5.20	475.00	5.20	450.00	5.20	500.00	5.20	500.00	3.00	400.00	3.00	400.00	3.00	450.00	4.30
550.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20	425.00	1.20

LONG BEACH ISLAND, N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE 750918	DATE 750612	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 630115	DATE 630121
SWV 101	SWV 103	SWV 10	SWV 5	SWV 1200	SWV 1200	SWV 1200	SWV 9	SWV 10
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00	53.00
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
132.00	132.00	132.00	132.00	132.00	132.00	132.00	132.00	132.00
140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
148.00	148.00	148.00	148.00	148.00	148.00	148.00	148.00	148.00
213.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
230.00	207.00	207.00	207.00	207.00	207.00	207.00	207.00	207.00
250.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
350.00	290.00	290.00	290.00	290.00	290.00	290.00	290.00	290.00
400.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00
417.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00

PROFILE 15

DATE 621002	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 630115	DATE 630121
SWV 3	SWV 10	SWV 5	SWV 1200	SWV 1200	SWV 1200	SWV 9	SWV 10
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
218.00	315.00	329.00	330.00	330.00	327.00	320.00	320.00
275.00	378.00	369.00	378.00	378.00	320.00	320.00	320.00
312.00	407.00	402.00	407.00	407.00	322.00	322.00	322.00
369.00	450.00	457.00	450.00	450.00	338.00	338.00	338.00
401.00	470.00	470.00	470.00	470.00	365.00	365.00	365.00
427.00	500.00	500.00	500.00	500.00	411.00	411.00	411.00
470.00	540.00	540.00	540.00	540.00	462.00	462.00	462.00
502.00	580.00	580.00	580.00	580.00	511.00	511.00	511.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 610120	DATE 610200	DATE 610212	DATE 610220	DATE 610226	DATE 610304	DATE 610311	DATE 610319
SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 16	SVY 17	SVY 18
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
401.00	376.00	376.00	316.00	451.00	850.00	450.00	550.00
425.00	410.00	410.00	420.00	471.00	470.00	476.00	476.00
452.00	375.00	375.00	320.00	520.00	470.00	476.00	476.00
476.00	410.00	410.00	347.00	501.00	500.00	500.00	500.00
485.00	2.80	2.80	6.40	2.10	525.00	2.50	525.00
510.00	426.00	426.00	351.00	527.00	1.20	551.00	577.00
515.00	450.00	450.00	5.80	551.00	551.00	551.00	577.00
575.00	476.00	476.00	2.00	601.00	576.00	601.00	576.00
	526.00	526.00	4.80	601.00	576.00	601.00	576.00
	551.00	551.00	3.50	601.00	601.00	601.00	601.00
	577.00	577.00	1.70	626.00	626.00	626.00	626.00
	601.00	601.00	4.80	626.00	626.00	626.00	626.00
	601.00	601.00	8.90	626.00	626.00	626.00	626.00
	601.00	601.00	8.90	626.00	626.00	626.00	626.00

PROFILE 15

DATE 610326	DATE 610413	DATE 610528	DATE 610528	DATE 610625	DATE 610711	DATE 610723	DATE 610804
SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
323.00	376.00	421.00	421.00	445.00	445.00	320.00	320.00
351.00	420.00	451.00	451.00	500.00	476.00	320.00	320.00
431.00	425.00	476.00	476.00	520.00	476.00	320.00	320.00
478.00	452.00	500.00	500.00	520.00	476.00	320.00	320.00
501.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00
526.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00
552.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00
599.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00
624.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00
652.00	470.00	501.00	501.00	520.00	476.00	320.00	320.00

LONG BEACH ISLAND N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 15

DATE 450110	DATE 650027	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660321	DATE 660922
SVY 43	SVY 44	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49	SVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
351.00	305.00	11.20	289.00	14.20	361.00	10.60	330.00
375.00	9.90	350.00	14.20	376.00	9.90	385.00	14.10
402.00	9.20	375.00	14.20	402.00	14.20	428.00	11.40
427.00	6.80	401.00	14.20	427.00	14.20	460.00	18.30
452.00	4.90	426.00	14.20	452.00	14.20	492.00	25.10
477.00	2.70	451.00	14.20	477.00	14.20	524.00	32.00
502.00	2.60	476.00	14.20	502.00	14.20	556.00	38.90
527.00	2.80	501.00	14.20	527.00	14.20	588.00	45.80
552.00	2.80	526.00	14.20	552.00	14.20	620.00	52.70
577.00	2.80	551.00	14.20	577.00	14.20	652.00	59.60
602.00	2.80	576.00	14.20	602.00	14.20	684.00	66.50
627.00	2.80	601.00	14.20	627.00	14.20	716.00	73.40
652.00	2.80	626.00	14.20	652.00	14.20	748.00	80.30
677.00	2.80	651.00	14.20	677.00	14.20	780.00	87.20
702.00	2.80	676.00	14.20	702.00	14.20	812.00	94.10
727.00	2.80	701.00	14.20	727.00	14.20	844.00	101.00
752.00	2.80	726.00	14.20	752.00	14.20	876.00	107.90
777.00	2.80	751.00	14.20	777.00	14.20	908.00	114.80
802.00	2.80	776.00	14.20	802.00	14.20	940.00	121.70
827.00	2.80	801.00	14.20	827.00	14.20	972.00	128.60
852.00	2.80	826.00	14.20	852.00	14.20	1004.00	135.50
877.00	2.80	851.00	14.20	877.00	14.20	1036.00	142.40
902.00	2.80	876.00	14.20	902.00	14.20	1068.00	149.30
927.00	2.80	901.00	14.20	927.00	14.20	1100.00	156.20
952.00	2.80	926.00	14.20	952.00	14.20	1132.00	163.10
977.00	2.80	951.00	14.20	977.00	14.20	1164.00	170.00
1002.00	2.80	976.00	14.20	1002.00	14.20	1196.00	176.90
1027.00	2.80	1001.00	14.20	1027.00	14.20	1228.00	183.80
1052.00	2.80	1026.00	14.20	1052.00	14.20	1260.00	190.70
1077.00	2.80	1051.00	14.20	1077.00	14.20	1292.00	197.60
1102.00	2.80	1076.00	14.20	1102.00	14.20	1324.00	204.50
1127.00	2.80	1101.00	14.20	1127.00	14.20	1356.00	211.40
1152.00	2.80	1126.00	14.20	1152.00	14.20	1388.00	218.30
1177.00	2.80	1151.00	14.20	1177.00	14.20	1420.00	225.20
1202.00	2.80	1176.00	14.20	1202.00	14.20	1452.00	232.10
1227.00	2.80	1201.00	14.20	1227.00	14.20	1484.00	239.00
1252.00	2.80	1226.00	14.20	1252.00	14.20	1516.00	245.90
1277.00	2.80	1251.00	14.20	1277.00	14.20	1548.00	252.80
1302.00	2.80	1276.00	14.20	1302.00	14.20	1580.00	259.70
1327.00	2.80	1301.00	14.20	1327.00	14.20	1612.00	266.60
1352.00	2.80	1326.00	14.20	1352.00	14.20	1644.00	273.50
1377.00	2.80	1351.00	14.20	1377.00	14.20	1676.00	280.40
1402.00	2.80	1376.00	14.20	1402.00	14.20	1708.00	287.30
1427.00	2.80	1401.00	14.20	1427.00	14.20	1740.00	294.20
1452.00	2.80	1426.00	14.20	1452.00	14.20	1772.00	301.10
1477.00	2.80	1451.00	14.20	1477.00	14.20	1804.00	308.00
1502.00	2.80	1476.00	14.20	1502.00	14.20	1836.00	314.90
1527.00	2.80	1501.00	14.20	1527.00	14.20	1868.00	321.80
1552.00	2.80	1526.00	14.20	1552.00	14.20	1900.00	328.70
1577.00	2.80	1551.00	14.20	1577.00	14.20	1932.00	335.60
1602.00	2.80	1576.00	14.20	1602.00	14.20	1964.00	342.50
1627.00	2.80	1601.00	14.20	1627.00	14.20	1996.00	349.40
1652.00	2.80	1626.00	14.20	1652.00	14.20	2028.00	356.30
1677.00	2.80	1651.00	14.20	1677.00	14.20	2060.00	363.20
1702.00	2.80	1676.00	14.20	1702.00	14.20	2092.00	370.10
1727.00	2.80	1701.00	14.20	1727.00	14.20	2124.00	377.00
1752.00	2.80	1726.00	14.20	1752.00	14.20	2156.00	383.90
1777.00	2.80	1751.00	14.20	1777.00	14.20	2188.00	390.80
1802.00	2.80	1776.00	14.20	1802.00	14.20	2220.00	397.70
1827.00	2.80	1801.00	14.20	1827.00	14.20	2252.00	404.60
1852.00	2.80	1826.00	14.20	1852.00	14.20	2284.00	411.50
1877.00	2.80	1851.00	14.20	1877.00	14.20	2316.00	418.40
1902.00	2.80	1876.00	14.20	1902.00	14.20	2348.00	425.30
1927.00	2.80	1901.00	14.20	1927.00	14.20	2380.00	432.20
1952.00	2.80	1926.00	14.20	1952.00	14.20	2412.00	439.10
1977.00	2.80	1951.00	14.20	1977.00	14.20	2444.00	446.00
2002.00	2.80	1976.00	14.20	2002.00	14.20	2476.00	452.90
2027.00	2.80	2001.00	14.20	2027.00	14.20	2508.00	459.80
2052.00	2.80	2026.00	14.20	2052.00	14.20	2540.00	466.70
2077.00	2.80	2051.00	14.20	2077.00	14.20	2572.00	473.60
2102.00	2.80	2076.00	14.20	2102.00	14.20	2604.00	480.50
2127.00	2.80	2101.00	14.20	2127.00	14.20	2636.00	487.40
2152.00	2.80	2126.00	14.20	2152.00	14.20	2668.00	494.30
2177.00	2.80	2151.00	14.20	2177.00	14.20	2700.00	501.20
2202.00	2.80	2176.00	14.20	2202.00	14.20	2732.00	508.10
2227.00	2.80	2201.00	14.20	2227.00	14.20	2764.00	515.00
2252.00	2.80	2226.00	14.20	2252.00	14.20	2796.00	521.90
2277.00	2.80	2251.00	14.20	2277.00	14.20	2828.00	528.80
2302.00	2.80	2276.00	14.20	2302.00	14.20	2860.00	535.70
2327.00	2.80	2301.00	14.20	2327.00	14.20	2892.00	542.60
2352.00	2.80	2326.00	14.20	2352.00	14.20	2924.00	549.50
2377.00	2.80	2351.00	14.20	2377.00	14.20	2956.00	556.40
2402.00	2.80	2376.00	14.20	2402.00	14.20	2988.00	563.30
2427.00	2.80	2401.00	14.20	2427.00	14.20	3020.00	570.20
2452.00	2.80	2426.00	14.20	2452.00	14.20	3052.00	577.10
2477.00	2.80	2451.00	14.20	2477.00	14.20	3084.00	584.00
2502.00	2.80	2476.00	14.20	2502.00	14.20	3116.00	590.90
2527.00	2.80	2501.00	14.20	2527.00	14.20	3148.00	597.80
2552.00	2.80	2526.00	14.20	2552.00	14.20	3180.00	604.70
2577.00	2.80	2551.00	14.20	2577.00	14.20	3212.00	611.60
2602.00	2.80	2576.00	14.20	2602.00	14.20	3244.00	618.50
2627.00	2.80	2601.00	14.20	2627.00	14.20	3276.00	625.40
2652.00	2.80	2626.00	14.20	2652.00	14.20	3308.00	632.30
2677.00	2.80	2651.00	14.20	2677.00	14.20	3340.00	639.20
2702.00	2.80	2676.00	14.20	2702.00	14.20	3372.00	646.10
2727.00	2.80	2701.00	14.20	2727.00	14.20	3404.00	653.00
2752.00	2.80	2726.00	14.20	2752.00	14.20	3436.00	659.90
2777.00	2.80	2751.00	14.20	2777.00	14.20	3468.00	666.80
2802.00	2.80	2776.00	14.20	2802.00	14.20	3500.00	673.70
2827.00	2.80	2801.00	14.20	2827.00	14.20	3532.00	680.60
2852.00	2.80	2826.00	14.20	2852.00	14.20	3564.00	687.50
2877.00	2.80	2851.00	14.20	2877.00	14.20	3596.00	694.40
2902.00	2.80	2876.00	14.20	2902.00	14.20	3628.00	701.30
2927.00	2.80	2901.00	14.20	2927.00	14.20	3660.00	708.20
2952.00	2.80	2926.00	14.20	2952.00	14.20	3692.00	715.10
2977.00	2.80	2951.00	14.20	2977.00	14.20	3724.00	722.00
3002.00	2.80	2976.00	14.20	3002.00	14.20	3756.00	728.90
3027.00	2.80	3001.00	14.20	3027.00	14.20	3788.00	735.80
3052.00	2.80	3026.00	14.20	3052.00	14.20	3820.00	742.70
3077.00	2.80	3051.00	14.20	3077.00	14.20	3852.00	749.60
3102.00	2.80	3076.00	14.20	3102.00	14.20	3884.00	756.50
3127.00	2.80	3101.00	14.20	3127.00	14.20	3916.00	763.40
3152.00	2.80	3126.00	14.20	3152.00	14.20	3948.00	770.30
3177.00	2.80	3151.00	14.20	3177.00	14.20	3980.00	777.20
3202.00	2.80	3176.00	14.20	3202.00	14.20	4012.00	784.10
3227.00	2.80	3201.00	14.20	3227.00	14.20	4044.00	791.00
3252.00	2.80	3226.00	14.20	3252.00	14.20	4076.00	

LONG BEACH ISLAND W. J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 641025	DATE 641113	DATE 641218	DATE 650115	DATE 650213	DATE 650304	DATE 650528	DATE 650924
SVY 40	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66	SVY 67
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
345.00	350.00	346.00	345.00	345.00	345.00	342.00	350.00
340.00	345.00	340.00	340.00	340.00	340.00	340.00	345.00
335.00	340.00	335.00	335.00	335.00	335.00	335.00	340.00
330.00	335.00	330.00	330.00	330.00	330.00	330.00	335.00
325.00	330.00	325.00	325.00	325.00	325.00	325.00	330.00
320.00	325.00	320.00	320.00	320.00	320.00	320.00	325.00
315.00	320.00	315.00	315.00	315.00	315.00	315.00	320.00
310.00	315.00	310.00	310.00	310.00	310.00	310.00	315.00
305.00	310.00	305.00	305.00	305.00	305.00	305.00	310.00
300.00	305.00	300.00	300.00	300.00	300.00	300.00	305.00
295.00	300.00	295.00	295.00	295.00	295.00	295.00	300.00
290.00	295.00	290.00	290.00	290.00	290.00	290.00	295.00
285.00	290.00	285.00	285.00	285.00	285.00	285.00	290.00
280.00	285.00	280.00	280.00	280.00	280.00	280.00	285.00
275.00	280.00	275.00	275.00	275.00	275.00	275.00	280.00
270.00	275.00	270.00	270.00	270.00	270.00	270.00	275.00
265.00	270.00	265.00	265.00	265.00	265.00	265.00	270.00
260.00	265.00	260.00	260.00	260.00	260.00	260.00	265.00
255.00	260.00	255.00	255.00	255.00	255.00	255.00	260.00
250.00	255.00	250.00	250.00	250.00	250.00	250.00	255.00
245.00	250.00	245.00	245.00	245.00	245.00	245.00	250.00
240.00	245.00	240.00	240.00	240.00	240.00	240.00	245.00
235.00	240.00	235.00	235.00	235.00	235.00	235.00	240.00
230.00	235.00	230.00	230.00	230.00	230.00	230.00	235.00
225.00	230.00	225.00	225.00	225.00	225.00	225.00	230.00
220.00	225.00	220.00	220.00	220.00	220.00	220.00	225.00
215.00	220.00	215.00	215.00	215.00	215.00	215.00	220.00
210.00	215.00	210.00	210.00	210.00	210.00	210.00	215.00
205.00	210.00	205.00	205.00	205.00	205.00	205.00	210.00
200.00	205.00	200.00	200.00	200.00	200.00	200.00	205.00
195.00	200.00	195.00	195.00	195.00	195.00	195.00	200.00
190.00	195.00	190.00	190.00	190.00	190.00	190.00	195.00
185.00	190.00	185.00	185.00	185.00	185.00	185.00	190.00
180.00	185.00	180.00	180.00	180.00	180.00	180.00	185.00
175.00	180.00	175.00	175.00	175.00	175.00	175.00	180.00
170.00	175.00	170.00	170.00	170.00	170.00	170.00	175.00
165.00	170.00	165.00	165.00	165.00	165.00	165.00	170.00
160.00	165.00	160.00	160.00	160.00	160.00	160.00	165.00
155.00	160.00	155.00	155.00	155.00	155.00	155.00	160.00
150.00	155.00	150.00	150.00	150.00	150.00	150.00	155.00
145.00	150.00	145.00	145.00	145.00	145.00	145.00	150.00
140.00	145.00	140.00	140.00	140.00	140.00	140.00	145.00
135.00	140.00	135.00	135.00	135.00	135.00	135.00	140.00
130.00	135.00	130.00	130.00	130.00	130.00	130.00	135.00
125.00	130.00	125.00	125.00	125.00	125.00	125.00	130.00
120.00	125.00	120.00	120.00	120.00	120.00	120.00	125.00
115.00	120.00	115.00	115.00	115.00	115.00	115.00	120.00
110.00	115.00	110.00	110.00	110.00	110.00	110.00	115.00
105.00	110.00	105.00	105.00	105.00	105.00	105.00	110.00
100.00	105.00	100.00	100.00	100.00	100.00	100.00	105.00
95.00	100.00	95.00	95.00	95.00	95.00	95.00	100.00
90.00	95.00	90.00	90.00	90.00	90.00	90.00	95.00
85.00	90.00	85.00	85.00	85.00	85.00	85.00	90.00
80.00	85.00	80.00	80.00	80.00	80.00	80.00	85.00
75.00	80.00	75.00	75.00	75.00	75.00	75.00	80.00
70.00	75.00	70.00	70.00	70.00	70.00	70.00	75.00
65.00	70.00	65.00	65.00	65.00	65.00	65.00	70.00
60.00	65.00	60.00	60.00	60.00	60.00	60.00	65.00
55.00	60.00	55.00	55.00	55.00	55.00	55.00	60.00
50.00	55.00	50.00	50.00	50.00	50.00	50.00	55.00
45.00	50.00	45.00	45.00	45.00	45.00	45.00	50.00
40.00	45.00	40.00	40.00	40.00	40.00	40.00	45.00
35.00	40.00	35.00	35.00	35.00	35.00	35.00	40.00
30.00	35.00	30.00	30.00	30.00	30.00	30.00	35.00
25.00	30.00	25.00	25.00	25.00	25.00	25.00	30.00
20.00	25.00	20.00	20.00	20.00	20.00	20.00	25.00
15.00	20.00	15.00	15.00	15.00	15.00	15.00	20.00
10.00	15.00	10.00	10.00	10.00	10.00	10.00	15.00
5.00	10.00	5.00	5.00	5.00	5.00	5.00	10.00
0.00	5.00	0.00	0.00	0.00	0.00	0.00	5.00

PROFILE 15

DATE 641029	DATE 641114	DATE 641218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700628
SVY 44	SVY 45	SVY 46	SVY 71	SVY 72	SVY 73	SVY 74	SVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
328.00	325.00	325.00	323.00	320.00	317.00	314.00	325.00
326.00	323.00	323.00	321.00	318.00	315.00	312.00	323.00
324.00	321.00	321.00	319.00	316.00	313.00	310.00	321.00
322.00	319.00	319.00	317.00	314.00	311.00	308.00	319.00
320.00	317.00	317.00	315.00	312.00	309.00	306.00	317.00
318.00	315.00	315.00	313.00	310.00	307.00	304.00	315.00
316.00	313.00	313.00	311.00	308.00	305.00	302.00	313.00
314.00	311.00	311.00	309.00	306.00	303.00	300.00	311.00
312.00	309.00	309.00	307.00	304.00	301.00	298.00	309.00
310.00	307.00	307.00	305.00	302.00	299.00	296.00	307.00
308.00	305.00	305.00	303.00	300.00	297.00	294.00	305.00
306.00	303.00	303.00	301.00	298.00	295.00	292.00	303.00
304.00	301.00	301.00	299.00	296.00	293.00	290.00	301.00
302.00	299.00	299.00	297.00	294.00	291.00	288.00	299.00
300.00	297.00	297.00	295.00	292.00	289.00	286.00	297.00
298.00	295.00	295.00	293.00	290.00	287.00	284.00	295.00
296.00	293.00	293.00	291.00	288.00	285.00	282.00	293.00
294.00	291.00	291.00	289.00	286.00	283.00	280.00	291.00
292.00	289.00	289.00	287.00	284.00	281.00	278.00	289.00
290.00	287.00	287.00	285.00	282.00	279.00	276.00	287.00
288.00	285.00	285.00	283.00	280.00	277.00	274.00	285.00
286.00	283.00	283.00	281.00	278.00	275.00	272.00	283.00
284.00	281.00	281.00	279.00	276.00	273.00	270.00	281.00
282.00	279.00	279.00	277.00	274.00	271.00	268.00	279.00
280.00	277.00	277.00	275.00	272.00	269.00	266.00	277.00
278.00	275.00	275.00	273.00	270.00	267.00	264.00	275.00
276.00	273.00	273.00	271.00	268.00	265.00	262.00	273.00
274.00	271.00	271.00	269.00	266.00	263.00	260.00	271.00
272.00	269.00	269.00	267.00	264.00	261.00	258.00	269.00
270.00	267.00	267.00	265.00	262.00	259.00	256.00	267.00
268.00	265.00	265.00	263.00	260.00	257.00	254.00	265.00
266.00	263.00	263.00	261.00	258.00	255.00	252.00	263.00
264.00	261.00	261.00	259.00	256.00	253.00	250.00	261.00
262.00	259.00	259.00	257.00	254.00	251.00	248.00	259.00
260.00	257.00	257.00	255.00	252.00	249.00	246.00	257.00
258.00	255.00	255.00	253.00	250.00	247.00	244.00	255.00
256.00	253.00	253.00	251.00	248.00	245.00	242.00	253.00
254.00	251.00	251.00	249.00	246.00	243.00	240.00	251.00
252.00	249.00	249.00	247.00	244.00	241.00	238.00	249.00
250.00	247.00	247.00	245.00	242.00	239.00	236.00	247.00
248.00	245.00	245.00	243.00	240.00	237.00	234.00	245.00
246.00	243.00	243.00	241.00	238.00	235.00	232.00	243.00
244.00	241.00	241.00	239.00	236.00	233.00	230.00	241.00
242.00	239.00	239.00	237.00	234.00	231.00	228.00	239.00
240.00	237.00	237.00	235.00	232.00	229.00	226.00	237.00
238.00	235.00	235.00	233.00	230.00	227.00	224.00	235.00
236.00	233.00	233.00	231.00	228.00	225.00	222.00	233.00
234.00	231.00	231.00	229.00	226.00	223.00	220.00	231.00
232.00	229.00	229.00	227.00	224.00	221.00	218.00	229.00
230.00	227.00	227.00	225.00	222.00	219.00	216.00	227.00
228.00	225.00	225.00	223.00	220.00	217.00	214.00	225.00
226.00	223.00	223.00	221.00	218.00	215.00	212.00	223.00
224.00	221.00	221.00	219.00	216.00	213.00	210.00	221.00
222.00	219.00	219.00	217.00	214.00	211.00	208.00	219.00
220.00	217.00	217.00	215.00	212.00	209.00	206.00	217.00
218.00	215.00	215.00	213.00	21			

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE SVV TIME	701017	DATE SVV TIME	701207	DATE SVV TIME	701218	DATE SVV TIME	710112	DATE SVV TIME	710208	DATE SVV TIME	710404	DATE SVV TIME	710508	DATE SVV TIME	710624
332.00	14+10	300+00	14+00	300+00	14+20	300+00	14+10	300+00	14+40	300+00	14+20	300+00	14+10	300+00	14+20
364.00	15+10	350+00	13+40	325+00	14+10	326+00	14+10	332+00	14+20	333+00	13+90	322+00	14+20	330+00	13+90
374.00	14+50	365+00	12+50	350+00	15+10	350+00	14+70	346+00	15+00	362+00	15+00	363+00	10+30	346+00	14+90
372.00	13+90	400+00	9+90	375+00	14+70	375+00	14+80	375+00	14+70	378+00	14+50	400+00	9+50	365+00	15+00
400+00	7+80	400+00	8+00	400+00	9+80	380+00	12+70	400+00	9+70	400+00	9+00	400+00	9+20	400+00	9+50
450+00	7+80	500+00	8+10	425+00	7+90	400+00	9+70	415+00	8+30	434+00	6+50	500+00	9+10	480+00	8+10
485+00	7+90	520+00	8+10	470+00	8+90	484+00	6+00	480+00	8+70	480+00	5+30	550+00	1+10	480+00	7+60
500+00	8+20	520+00	8+10	482+00	8+90	484+00	6+00	480+00	8+70	480+00	5+30	550+00	1+10	480+00	7+60
500+00	8+20	600+00	8+80	482+00	8+90	484+00	6+00	480+00	8+70	480+00	5+30	550+00	1+10	480+00	7+60
510+00	8+70	600+00	8+80	482+00	8+90	484+00	6+00	480+00	8+70	480+00	5+30	550+00	1+10	480+00	7+60
525+00	5+20	515+00	5+20	500+00	5+20	600+00	1+40	600+00	4+00	525+00	3+50	600+00	1+50	600+00	4+20
550+00	3+30	515+00	5+20	500+00	5+20	600+00	1+40	600+00	4+00	525+00	3+50	600+00	1+50	600+00	4+20
600+00	4+60	525+00	4+20	525+00	4+20	665+00	3+30	665+00	4+00	575+00	1+10	600+00	1+50	600+00	4+20
650+00	4+60	525+00	4+20	525+00	4+20	665+00	3+30	665+00	4+00	575+00	1+10	600+00	1+50	600+00	4+20
700+00	1+80	575+00	4+20	575+00	4+20	665+00	3+30	665+00	4+00	575+00	1+10	600+00	1+50	600+00	4+20
750+00	1+80	575+00	4+20	575+00	4+20	665+00	3+30	665+00	4+00	575+00	1+10	600+00	1+50	600+00	4+20
800+00	4+30	575+00	4+20	575+00	4+20	665+00	3+30	665+00	4+00	575+00	1+10	600+00	1+50	600+00	4+20

PROFILE 15

DATE SVV TIME	710817	DATE SVV TIME	711007	DATE SVV TIME	711214	DATE SVV TIME	720211	DATE SVV TIME	720215	DATE SVV TIME	720223	DATE SVV TIME	720311	DATE SVV TIME	72+0411
300+00	14+20	300+00	14+50	300+00	14+10	300+00	14+20	300+00	14+20	300+00	13+90	300+00	14+20	300+00	14+10
350+00	13+40	370+00	13+50	335+00	14+00	334+00	14+50	327+00	14+70	323+00	15+40	335+00	14+00	310+00	14+20
350+00	13+40	400+00	10+00	350+00	14+70	351+00	16+20	345+00	14+90	349+00	15+90	355+00	14+20	336+00	14+90
372+00	12+80	450+00	9+10	390+00	14+50	374+00	15+10	373+00	14+20	365+00	15+90	376+00	14+90	358+00	15+00
420+00	7+90	500+00	8+10	400+00	14+80	400+00	10+40	392+00	14+00	379+00	14+60	395+00	9+20	372+00	15+00
450+00	7+90	500+00	8+10	400+00	14+80	400+00	10+40	392+00	14+00	379+00	14+60	395+00	9+20	372+00	15+00
490+00	7+90	500+00	8+10	400+00	14+80	400+00	10+40	392+00	14+00	379+00	14+60	395+00	9+20	372+00	15+00
500+00	8+20	600+00	11+00	458+00	9+20	462+00	9+10	470+00	6+30	520+00	3+90	500+00	1+20	458+00	8+20
500+00	8+20	600+00	11+00	458+00	9+20	462+00	9+10	470+00	6+30	520+00	3+90	500+00	1+20	458+00	8+20
578+00	8+20	600+00	11+10	500+00	4+70	500+00	4+90	500+00	4+00	524+00	4+10	575+00	4+50	478+00	8+20
550+00	8+20	600+00	11+10	500+00	4+70	500+00	4+90	500+00	4+00	524+00	4+10	575+00	4+50	478+00	8+20
600+00	8+20	600+00	11+10	500+00	4+70	500+00	4+90	500+00	4+00	524+00	4+10	575+00	4+50	478+00	8+20
600+00	8+20	600+00	11+10	500+00	4+70	500+00	4+90	500+00	4+00	524+00	4+10	575+00	4+50	478+00	8+20
600+00	8+20	600+00	11+10	500+00	4+70	500+00	4+90	500+00	4+00	524+00	4+10	575+00	4+50	478+00	8+20

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 720820	DATE 721017	DATE 721205	DATE 730103	DATE 730214	DATE 730310	DATE 730325	DATE 730403
SVV 93	SVV 90	SVV 95	SVV 96	SVV 97	SVV 98	SVV 99	SVV 100
TIME 800	TIME 1100	TIME 1200	TIME 1200	TIME 400	TIME 1000	TIME 000	TIME 1200
300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
320.00	317.00	316.00	316.00	317.00	339.00	341.00	341.00
350.00	342.00	350.00	375.00	330.00	348.00	357.00	350.00
373.00	350.00	360.00	400.00	366.00	383.00	382.00	378.00
380.00	372.00	372.00	450.00	365.00	390.00	388.00	383.00
400.00	395.00	391.00	500.00	384.00	390.00	400.00	386.00
450.00	470.00	406.00	550.00	400.00	450.00	450.00	493.00
465.00	490.00	450.00	600.00	480.00	495.00	500.00	500.00
500.00	510.00	510.00	600.00	480.00	500.00	500.00	450.00
550.00	525.00	525.00	550.00	485.00	525.00	550.00	500.00
600.00	575.00	575.00	575.00	575.00	575.00	575.00	550.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00

PROFILE 15

DATE 730418	DATE 730612
SVV 101	SVV 103
TIME 1000	TIME 1200
300.00	300.00
315.00	315.00
375.00	375.00
400.00	400.00
450.00	450.00
500.00	500.00
540.00	540.00

LONG BEACH ISLAND N.W.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
621002	621011	621023	621029	621108	621210	630115	630121
4	11	5	6	10	A	9	10
1200	1200	1200	1200	1200	1200	1200	1200
53.00	10.60	86.00	17.00	101.00	16.90	85.00	17.30
81.00	17.20	100.00	16.50	110.00	15.50	110.00	16.00
107.00	17.00	141.00	12.90	142.00	12.80	143.00	12.00
184.00	9.60	165.00	11.90	183.00	11.00	170.00	11.10
197.00	4.50	200.00	7.00	222.00	7.70	174.00	8.60
258.00	1.20	329.00	3.70	262.00	4.10	183.00	6.20
327.00	-1.80	356.00	0.70	298.00	1.10	217.00	5.70
403.00	-2.10	403.00	-0.70	340.00	-1.30	252.00	5.20
407.00	-3.50			289.00	4.70	272.00	1.50
				286.00	3.00	310.00	1.50
				336.00	1.60	332.00	-1.00
						150.00	11.80
						170.00	10.90
						224.00	8.20
						274.00	6.20
						301.00	5.10
						326.00	-1.40
						346.00	-1.50

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
630128	630220	630212	630226	630300	630306	630311	630319
11	12	13	14	15	16	17	18
1200	1200	1200	1200	1200	1200	1200	1200
177.00	8.50	150.00	12.00	201.00	7.20	150.00	11.90
210.00	2.80	160.00	11.90	225.00	7.00	165.00	11.10
246.00	9.60	175.00	10.90	251.00	6.20	176.00	8.20
266.00	4.60	185.00	5.30	277.00	5.10	199.00	7.00
300.00	2.50	200.00	7.00	277.00	3.80	222.00	6.80
324.00	0.60	225.00	6.60	301.00	3.60	251.00	5.00
337.00	-1.30	250.00	5.00	326.00	-1.50	276.00	2.70
350.00	-2.70	270.00	3.70	351.00	-2.20	310.00	1.10
		301.00	2.70			373.00	-1.30
		325.00	1.10			301.00	1.90
		351.00	-2.20			326.00	-0.40
						376.00	-1.10

LONG BEACH ISLAND H.A.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE 630326	DATE 630328	DATE 630613	DATE 630625	DATE 630711	DATE 630723	DATE 630804	DATE 630820	DATE 630826	DATE 630826	DATE 630826	DATE 630826	DATE 630826
SVY 19	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26	SVY 28	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
213.00	0.90	209.00	7.30	202.00	7.50	151.00	11.90	11.90	226.00	8.00	225.00	11.90
225.00	10.40	224.00	7.50	227.00	7.80	173.00	17.50	17.50	237.00	6.00	236.00	17.50
250.00	12.00	236.00	6.30	236.00	7.80	201.00	7.20	7.20	242.00	6.80	242.00	7.20
279.00	8.80	236.00	4.30	252.00	5.80	225.00	4.80	4.80	250.00	4.80	250.00	4.80
303.00	105.00	16.70	273.00	3.10	250.00	4.30	301.00	4.30	301.00	1.70	301.00	4.30
327.00	126.00	15.40	326.00	3.00	301.00	5.00	276.00	1.90	326.00	0.00	326.00	1.90
	252.00	7.80		327.00	3.50	325.00	3.50	325.00		3.50	325.00	3.50
	262.00	7.80										
	262.00	7.80										
	262.00	7.80										
	301.00	4.80										
	301.00	4.80										
	316.00	11.20										

PROFILE 16

DATE 630820	DATE 630826	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115	DATE 640212
SVY 29	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34	SVY 35	SVY 36
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
201.00	179.00	6.40	126.00	15.20	165.00	9.80	50.00
226.00	19.30	6.90	176.00	8.20	176.00	7.90	82.00
251.00	7.10	7.10	202.00	7.50	204.00	5.90	125.00
276.00	6.10	5.50	227.00	7.80	227.00	2.90	140.00
302.00	5.70	5.50	253.00	0.40	303.00	5.80	176.00
326.00	0.60	3.30	303.00	0.30		9.80	176.00
351.00	0.00	313.00			252.00	6.60	202.00
376.00	1.70	313.00			326.00	3.80	326.00
	12.80					1.60	
						50.00	50.00
						102.00	102.00
						162.00	162.00
						181.00	181.00
						173.00	173.00
						202.00	202.00
						226.00	226.00
						241.00	241.00
						281.00	281.00
						305.00	305.00
						329.00	329.00
						354.00	354.00
						379.00	379.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	
50.00	10.70	55.00	12.20	56.00	12.20	57.00	12.20	58.00	12.20	59.00	12.20	60.00	12.20
06.00	17.30	06.00	17.30	06.00	17.30	06.00	17.30	06.00	17.30	06.00	17.30	06.00	17.30
101.00	16.80	101.00	17.70	127.00	16.30	101.00	17.00	101.00	17.00	101.00	17.00	101.00	17.00
127.00	17.20	116.00	17.90	151.00	10.80	127.00	16.30	126.00	16.70	135.00	17.40	145.00	18.40
152.00	17.20	171.00	17.10	177.00	7.70	151.00	10.70	151.00	10.70	176.00	8.40	185.00	9.50
159.00	8.00	144.00	12.00	203.00	7.10	166.00	6.30	165.00	7.80	202.00	6.40	201.00	6.40
178.00	7.00	159.00	8.40	227.00	6.80	178.00	7.00	202.00	7.00	228.00	6.40	227.00	6.40
252.00	4.80	174.00	6.70	252.00	5.80	227.00	7.40	228.00	7.60	253.00	7.70	252.00	7.70
302.00	2.10	201.00	7.00	277.00	6.10	254.00	7.40	263.00	6.80	263.00	6.80	263.00	6.80
328.00	1.80	227.00	7.00	328.00	6.10	259.00	5.70	277.00	6.00	303.00	5.60	303.00	5.60
358.00	2.00	252.00	5.80	353.00	6.20	277.00	2.30	303.00	1.80	353.00	1.40	353.00	1.40
388.00	2.00	304.00	2.80	398.00	6.30	354.00	6.30	354.00	6.30	398.00	6.30	398.00	6.30
398.00	1.80	351.00	2.80	398.00	6.30	354.00	6.30	354.00	6.30	398.00	6.30	398.00	6.30
408.00	1.50	378.00	1.10	408.00	6.30	354.00	6.30	354.00	6.30	408.00	6.30	408.00	6.30
408.00	1.50	408.00	6.30	408.00	6.30	408.00	6.30	408.00	6.30	408.00	6.30	408.00	6.30

PROFILE 16

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	
55.00	10.80	129.00	17.60	90.00	17.80	151.00	11.00	59.00	15.10	124.00	16.90	133.00	16.00
90.00	17.10	152.00	10.80	126.00	18.30	202.00	7.20	82.00	17.80	162.00	11.20	162.00	11.20
119.00	16.90	176.00	7.50	152.00	10.90	252.00	7.80	134.00	16.80	169.00	10.00	201.00	7.80
128.00	17.50	201.00	7.00	202.00	7.30	277.00	5.20	155.00	11.10	201.00	7.90	251.00	8.30
158.00	9.50	224.00	7.10	258.00	8.00	303.00	3.60	201.00	7.80	251.00	7.70	275.00	5.60
203.00	7.00	276.00	6.10	278.00	5.30	328.00	2.20	251.00	6.80	276.00	5.70	301.00	3.70
253.00	7.00	327.00	1.10	303.00	3.40	353.00	1.60	271.00	6.60	302.00	3.60	328.00	2.90
303.00	6.70	353.00	6.20	328.00	2.90	403.00	6.40	302.00	4.80	327.00	1.60	352.00	1.60
353.00	3.00	378.00	6.80	328.00	1.80	450.00	6.50	302.00	2.80	351.00	6.50	378.00	6.60
353.00	6.10	393.00	6.20	394.00	6.50	450.00	6.50	392.00	1.10	366.00	1.40	403.00	6.40
363.00	6.00	408.00	6.20	408.00	6.20	408.00	6.20	408.00	6.20	408.00	6.20	408.00	6.20

LONG BEACH ISLAND N.J.
 DATUM IS HSL MEASUREMENT TS FT

PROFILE 1b

DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 681009	DATE 681023
SVVY 53	SVVY 56	SVVY 55	SVVY 54	SVVY 57	SVVY 58	SVVY 59	SVVY 60
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
150.00	80.00	160.00	9.80	180.00	9.80	190.00	10.16
173.00	106.00	17.20	251.00	5.80	230.00	7.50	230.00
200.00	125.00	19.50	301.00	3.90	331.00	2.80	260.00
280.00	7.10	190.00	331.00	1.80	430.00	-8.80	260.00
352.00	9.20	177.00	10.10	392.00	-7.70	280.00	5.90
401.00	1.70	200.00	8.10	472.00	-2.70	430.00	133.00
482.00	0.20	240.00	5.90			430.00	480.00
502.00	-1.20	520.00	6.10			380.00	450.00
		381.00	1.20				450.00
		427.00	-1.50				450.00

PROFILE 1c

DATE 681115	DATE 681218	DATE 690115	DATE 690215	DATE 690304	DATE 690528	DATE 690824	DATE 691020
SVVY 61	SVVY 62	SVVY 63	SVVY 64	SVVY 65	SVVY 66	SVVY 67	SVVY 68
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
180.00	9.90	190.00	10.20	180.00	10.70	180.00	11.20
230.00	6.70	210.00	6.60	280.00	5.20	280.00	5.10
280.00	5.10	280.00	6.40	280.00	5.60	280.00	9.20
330.00	3.80	330.00	5.00	330.00	6.10	238.00	9.20
380.00	1.80	380.00	-1.20	380.00	1.00	281.00	2.70
430.00	-0.50	430.00	-2.20	430.00	-1.50	330.00	1.70
		430.00	-2.80	430.00	-2.80	380.00	3.10
				430.00	-2.80	380.00	3.10
						400.00	1.90
						425.00	-1.80
						450.00	-3.70
						475.00	-0.80
						500.00	-3.00
						525.00	-3.00
						550.00	-3.00
						575.00	-3.00
						600.00	-3.00
						625.00	-3.00

LUNG HEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	
77 1200	78 1200	79 1200	80 1200	81 1200	82 1200	83 1200	84 1200	85 1200	86 1200	87 1200	88 1200	89 1200	
180.00	11.20	180.00	11.30	180.00	11.40	180.00	11.50	180.00	12.00	180.00	12.10	180.00	12.20
210.00	9.70	197.00	9.80	198.00	10.20	197.00	10.00	198.00	10.20	198.00	10.40	198.00	10.60
230.00	7.90	230.00	8.00	230.00	8.00	230.00	8.00	230.00	8.00	230.00	8.00	230.00	8.00
260.00	6.80	260.00	6.80	260.00	7.50	260.00	7.50	260.00	7.50	260.00	7.50	260.00	7.50
280.00	6.40	280.00	6.50	280.00	6.00	280.00	6.00	280.00	6.00	280.00	6.00	280.00	6.00
298.00	6.70	310.00	6.30	330.00	4.90	330.00	4.20	330.00	4.30	330.00	4.30	330.00	4.30
310.00	5.80	330.00	4.40	330.00	3.80	330.00	3.80	330.00	3.80	330.00	3.80	330.00	3.80
350.00	4.80	357.00	2.60	350.00	2.50	350.00	2.90	350.00	2.90	350.00	2.90	350.00	2.90
380.00	2.40	380.00	2.40	380.00	2.40	380.00	2.40	380.00	2.40	380.00	2.40	380.00	2.40
400.00	1.80	430.00	2.70	430.00	4.00	430.00	4.00	430.00	4.00	430.00	4.00	430.00	4.00
425.00	2.30	465.00	3.00	465.00	3.00	465.00	3.00	465.00	3.00	465.00	3.00	465.00	3.00
475.00	3.00	485.00	3.90	485.00	3.90	485.00	3.90	485.00	3.90	485.00	3.90	485.00	3.90

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	
77 1200	78 1200	79 1200	80 1200	81 1200	82 1200	83 1200	84 1200	85 1200	86 1200	87 1200	88 1200	89 1200	
200.00	10.20	200.00	10.30	200.00	11.00	200.00	11.30	200.00	11.60	200.00	11.90	200.00	12.20
250.00	8.00	250.00	8.00	250.00	8.00	250.00	8.00	250.00	8.00	250.00	8.00	250.00	8.00
300.00	6.20	300.00	6.20	300.00	6.20	300.00	6.20	300.00	6.20	300.00	6.20	300.00	6.20
350.00	2.20	350.00	2.60	350.00	2.60	350.00	2.60	350.00	2.60	350.00	2.60	350.00	2.60
400.00	2.80	400.00	2.80	400.00	2.80	400.00	2.80	400.00	2.80	400.00	2.80	400.00	2.80
450.00	3.80	450.00	3.80	450.00	3.80	450.00	3.80	450.00	3.80	450.00	3.80	450.00	3.80
500.00	4.80	500.00	4.80	500.00	4.80	500.00	4.80	500.00	4.80	500.00	4.80	500.00	4.80
550.00	5.80	550.00	5.80	550.00	5.80	550.00	5.80	550.00	5.80	550.00	5.80	550.00	5.80

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFIL 1b

DATE 710817	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720313	DATE 720311	DATE 720324	DATE 720411
SVV A5	SVV R6	SVV R7	SVV R8	SVV A9	SVV W0	SVV Q1	SVV Q2	SVV Q9	SVV Q2
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 0000	TIME 1200
100.00	100.00	100.00	200.00	11.10	200.00	11.10	200.00	12.10	200.00
120.00	120.00	120.00	250.00	8.80	250.00	8.80	250.00	6.80	250.00
133.00	140.00	150.00	300.00	7.20	300.00	6.70	300.00	5.00	290.00
158.00	172.00	151.00	350.00	2.90	330.00	3.20	350.00	0.00	300.00
189.00	120.00	178.00	400.00	1.40	400.00	1.40	375.00	2.30	350.00
200.00	190.00	200.00	450.00	-0.00	450.00	-2.60	400.00	0.00	400.00
250.00	9.50	430.00	425.00	-1.70			450.00	-1.80	
260.00	8.10	250.00							
280.00	6.70	300.00							
300.00	0.00	325.00							
350.00	-1.00	350.00							
375.00	-3.70	400.00							

PROFIL 1b

DATE 720324	DATE 720317	DATE 721205	DATE 730103	DATE 730214	DATE 730310	DATE 730324	DATE 730411
SVV Q3	SVV Q0	SVV Q5	SVV Q6	SVV Q7	SVV Q8	SVV Q9	SVV Q0
TIME 0000	TIME 1100	TIME 1200	TIME 1200	TIME 0000	TIME 1100	TIME 0000	TIME 1300
04.00	04.00	06.00	06.00	04.00	05.00	05.00	04.00
11.20	11.00	11.70	11.50	11.20	11.10	11.20	11.00
16.20	16.00	16.80	16.30	16.20	16.20	16.90	16.50
16.80	10.00	17.00	16.80	100.00	100.00	100.00	100.00
17.20	17.00	17.00	130.00	100.00	100.00	100.00	100.00
19.30	136.00	131.00	140.00	14.90	18.80	18.90	18.50
135.00	156.00	149.00	150.00	152.00	15.10	15.50	15.00
14.70	181.00	177.00	190.00	172.00	180.00	18.20	18.00
15.20	191.00	190.00	200.00	193.00	190.00	19.20	19.00
190.00	195.00	190.00	200.00	200.00	211.00	200.00	200.00
11.80	198.00	190.00	215.00	207.00	200.00	200.00	200.00
200.00	200.00	120.00	250.00	209.00	300.00	3.50	200.00
219.00	215.00	200.00	250.00	225.00	350.00	6.30	250.00
250.00	250.00	250.00	300.00	250.00	400.00	8.50	300.00
270.00	262.00	262.00	350.00	300.00	450.00	10.00	350.00
353.00	320.00	300.00	375.00	350.00	450.00	12.00	400.00
360.00	320.00	350.00	400.00	400.00	450.00	14.00	400.00
450.00	400.00	425.00	425.00	425.00	425.00	17.70	400.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE	TSR41H	DATE	TSR030	DATE	TSR012
SVVY	101	SVVY	102	SVVY	103
TIME	1600	TIME	1300	TIME	1200
45.00	11.10	05.00	11.00	05.00	11.00
68.00	16.10	15.00	17.00	15.00	17.00
100.00	18.00	15.00	18.50	12.00	16.70
152.00	18.20	18.50	18.50	12.00	16.90
186.00	19.00	19.50	19.00	13.00	16.70
192.00	14.90	21.50	16.30	15.00	17.80
200.00	11.00	25.00	7.60	18.00	14.20
208.00	9.80	28.50	6.10	19.20	15.70
250.00	8.80	30.00	4.30	20.00	12.30
282.00	8.80	35.00	8.70	21.50	6.50
300.00	8.50	37.50	-3.70	250.00	8.20
325.00	8.30			255.00	8.00
350.00	1.20			275.00	1.80
375.00	-1.50			300.00	-1.00
				305.00	-1.40
				305.00	-3.20

PROFILE 17

DATE	621002	DATE	621011	DATE	621023	DATE	621029	DATE	621108	DATE	621210	DATE	650115	DATE	651121
SVVY	3	SVVY	4	SVVY	5	SVVY	6	SVVY	7	SVVY	R	SVVY	9	SVVY	1200
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
15.00	14.50	-1.00	13.50	-1.00	13.50	-1.00	13.50	14.10	14.10	20.00	13.00	-1.00	13.50	17.50	5.80
37.00	13.00	22.00	14.50	10.10	14.10	23.00	14.70	35.00	13.20	50.00	9.00	31.00	14.50	20.00	2.40
60.00	7.90	24.00	12.50	6.00	11.80	69.00	10.00	65.00	8.80	54.00	8.00	37.00	11.80	25.00	-2.00
117.00	5.30	11.00	8.10	49.00	10.00	183.00	-1.90	58.00	6.80	107.00	3.10	69.00	8.80	27.00	-1.20
150.00	1.50	103.00	4.70	95.00	7.00			86.00	6.00	189.00	1.00	125.00	7.80	7.80	
190.00	-3.00	175.00	-1.00	139.00	2.50			132.00	2.00	218.00	-0.50	142.00	7.90	151.00	7.00
				182.00	-2.10			176.00	-1.50	340.00	-0.70	178.00	5.80	300.00	5.80
										390.00	-0.40	201.00	3.90	286.00	1.50
												251.00	-3.30	275.00	-1.20

LONG BEACH ISLAND G+J
DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
0.00	13.30	63.00	11.70	1.00	13.30	13.30	0.00	13.30	0.00	13.30	66.00	12.00	0.00
16.00	13.00	71.00	10.60	22.00	13.30	13.20	25.00	13.00	26.00	13.00	65.00	9.20	26.00
39.00	15.50	102.00	7.60	41.00	16.30	02.00	16.00	15.00	40.00	16.00	126.00	7.90	47.00
51.00	15.10	128.00	6.70	77.00	10.10	45.00	16.20	50.00	16.20	52.00	133.00	7.50	47.00
63.00	11.80	177.00	2.20	102.00	8.00	65.00	11.60	75.00	10.20	76.00	174.00	3.40	101.00
103.00	7.40	227.00	0.20	128.00	6.60	101.00	8.00	101.00	7.90	100.00	201.00	8.20	128.00
127.00	6.10	253.00	-0.30	152.00	6.90	127.00	6.80	151.00	6.90	127.00	211.00	-0.90	170.00
152.00	4.70	303.00	-2.10	177.00	5.70	151.00	6.20	165.00	6.30	151.00	202.00	0.00	202.00
202.00	2.50	329.00	-4.10	229.00	1.90	177.00	5.30	176.00	4.10	178.00	225.00	0.00	226.00
253.00	1.20	383.00	-5.00	250.00	1.00	228.00	7.10	206.00	5.10	225.00	242.00	-1.90	242.00
283.00	-1.10	401.00	-6.00	283.00	0.00	306.00	-1.20	282.00	-2.60	292.00	252.00	-1.90	252.00
353.00	-3.20	433.00	-7.00	333.00	-1.20	306.00	-2.00	328.00	-2.60	328.00	252.00	-1.90	252.00

PROFILE 17

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
0.00	13.40	0.00	13.30	0.00	13.40	30.00	13.50	60.00	12.70	39.00	14.00	58.00	12.00
26.00	15.70	28.00	12.70	29.00	15.70	8.00	15.90	15.90	6.20	56.00	16.00	62.00	13.00
45.00	11.90	66.00	11.90	57.00	15.70	7.40	81.00	12.80	8.10	60.00	15.50	81.00	9.00
101.00	8.90	77.00	11.50	84.00	15.00	7.00	91.00	9.70	131.00	7.00	101.00	7.50	7.50
126.00	7.60	101.00	8.90	101.00	9.10	102.00	7.90	102.00	6.50	101.00	7.50	126.00	7.50
177.00	3.20	127.00	7.60	126.00	7.00	156.00	8.00	176.00	7.80	201.00	3.40	150.00	7.40
202.00	1.00	177.00	3.20	177.00	6.40	202.00	1.60	226.00	2.80	226.00	1.60	201.00	4.10
227.00	0.20	203.00	1.10	228.00	2.40	227.00	0.30	252.00	0.40	252.00	0.10	251.00	1.00
		227.00	0.20	277.00	-0.40	278.00	-2.00	278.00	-1.30	303.00	-2.50	274.00	-0.50
				303.00	-3.20			302.00	-2.10			317.00	-2.00

LONG BEACH ISLAND T.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE	67027	DATE	67028	DATE	67029	DATE	6712A	DATE	68017	DATE	68027	DATE	69027	DATE	69027
SVY	50	SVY	53	SVY	54	SVY	55	SVY	56	SVY	57	SVY	58	SVY	59
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
54.00	14.00	54.00	16.40	54.00	16.10	54.00	16.20	54.00	16.30	45.00	15.00	45.00	15.00	52.00	15.00
64.00	14.00	64.00	16.40	64.00	16.40	64.00	16.00	64.00	16.00	60.00	16.60	60.00	16.60	50.00	16.20
73.00	10.20	69.00	11.20	70.00	11.20	70.00	10.00	79.00	10.00	80.00	10.20	80.00	10.20	90.00	9.70
94.00	9.10	77.00	11.00	74.00	8.40	151.00	5.50	125.00	4.00	100.00	8.00	90.00	10.20	140.00	5.90
125.00	9.10	101.00	8.40	126.00	6.60	177.00	5.40	150.00	4.50	151.00	5.50	100.00	4.90	200.00	4.70
151.00	5.50	152.00	5.90	151.00	5.80	201.00	4.20	177.00	5.20	200.00	5.50	150.00	2.50	220.00	4.70
177.00	3.30	177.00	6.50	176.00	6.30	265.00	6.80	261.00	3.20	250.00	1.70	200.00	2.50	300.00	6.60
201.00	2.30	191.00	6.30	201.00	6.30	262.00	6.80	262.00	5.00	300.00	1.00	200.00	0.00	325.00	6.20
251.00	1.60	252.00	1.30	252.00	1.80	277.00	6.70	277.00	6.80	325.00	6.20	300.00	2.50	325.00	6.20
302.00	1.30	278.00	1.30	277.00	1.80	307.00	6.60	307.00	6.20	350.00	6.20	300.00	2.50	350.00	6.20
327.00	6.20	292.00	6.60	302.00	6.50										

PROFILE 17

DATE	681009	DATE	681021	DATE	6812A	DATE	690115	DATE	690213	DATE	690309	DATE	690528
SVY	49	SVY	60	SVY	61	SVY	62	SVY	63	SVY	64	SVY	65
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
45.00	14.00	45.00	15.70	55.00	14.00	45.00	14.30	40.00	15.00	40.00	15.60	45.00	14.00
40.00	14.30	40.00	16.50	62.00	14.20	60.00	14.50	60.00	16.00	60.00	16.00	60.00	16.00
70.00	13.30	70.00	13.10	70.00	10.50	70.00	10.60	87.00	15.00	60.00	16.40	60.00	16.00
88.00	9.20	90.00	9.80	80.00	9.20	85.00	10.50	87.00	10.30	90.00	10.10	100.00	10.00
100.00	8.60	100.00	8.60	100.00	5.80	150.00	4.20	150.00	7.10	100.00	9.30	125.00	7.40
170.00	8.60	185.00	6.50	200.00	6.50	200.00	4.60	200.00	5.80	125.00	4.80	100.00	10.00
175.00	6.50	185.00	6.50	200.00	6.50	200.00	4.60	200.00	5.80	125.00	4.80	100.00	10.00
200.00	4.50	170.00	7.70	500.00	2.40	220.00	4.70	220.00	5.40	150.00	8.30	150.00	3.10
200.00	3.50	170.00	7.70	500.00	0.00	220.00	4.70	220.00	5.40	150.00	7.60	200.00	2.00
225.00	2.80	225.00	2.90	325.00	1.50	275.00	2.90	250.00	3.40	175.00	5.70	250.00	1.00
250.00	2.80	275.00	3.70	325.00	1.50	275.00	1.30	275.00	1.50	200.00	3.50	500.00	6.80
275.00	1.60	300.00	4.00	325.00	1.60	325.00	2.40	300.00	2.80	250.00	1.90	250.00	2.10
300.00	2.20	355.00	1.60							300.00	1.80	325.00	2.40
										300.00	1.80	325.00	2.40
										300.00	1.80	325.00	2.40

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE 690924	DATE 691020	DATE 691118	DATE 691218	DATE 700120	DATE 700214	DATE 700319	DATE 700521
SHVY 67	SHVY 6A	SHVY 69	SHVY 70	SHVY 71	SHVY 72	SHVY 73	SHVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
30.00	15.00	15.00	15.00	15.00	24.00	15.00	14.00
50.00	19.30	19.30	19.30	19.30	64.00	14.00	54.00
90.00	100.00	90.00	50.00	10.50	29.00	10.10	92.00
100.00	8.70	9.70	61.00	17.20	16.30	10.10	77.00
110.00	7.90	9.40	60.00	17.20	11.50	15.70	100.00
117.00	8.30	100.00	65.00	13.00	9.80	17.60	100.00
158.00	8.30	130.00	77.00	10.50	8.50	78.00	110.00
175.00	8.30	175.00	89.00	10.50	200.00	11.80	200.00
200.00	7.90	200.00	97.00	9.60	5.70	100.00	11.80
225.00	5.20	175.00	125.00	9.60	203.00	9.40	250.00
250.00	2.80	200.00	171.00	8.70	3.70	200.00	9.40
275.00	1.30	250.00	5.40	198.00	3.70	250.00	6.80
300.00	-1.20	300.00	285.00	3.10	1.20	300.00	3.00
325.00	-1.90	325.00	250.00	250.00	-1.20	300.00	1.80
350.00	-2.70	300.00	300.00	1.00	350.00	362.00	-2.50
400.00	-1.20	300.00	300.00	1.00			
450.00	-1.90	325.00	325.00	-1.30			
500.00	-2.70	343.00	343.00	-1.30			

PROFILE 17

DATE 700828	DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710608
SHVY 75	SHVY 7A	SHVY 77	SHVY 7A	SHVY 79	SHVY H0	SHVY A1	SHVY M2
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	13.60	0.00	9.00	15.00	14.20	0.00	0.00
15.00	31.50	15.00	16.00	13.60	30.00	13.50	25.00
30.00	19.10	51.00	20.00	18.50	56.00	13.00	14.50
45.00	19.50	15.00	28.00	14.50	60.00	21.00	70.00
60.00	11.50	70.00	55.00	12.50	19.00	15.20	70.00
75.00	70.00	15.00	54.00	17.50	100.00	54.00	100.00
90.00	74.00	100.00	70.00	17.00	100.00	74.00	100.00
105.00	13.10	100.00	100.00	15.50	150.00	74.00	150.00
150.00	9.90	150.00	100.00	10.50	200.00	84.00	200.00
200.00	8.30	200.00	150.00	10.50	4.00	100.00	150.00
250.00	7.90	250.00	170.00	6.20	1.50	151.00	200.00
300.00	6.10	300.00	200.00	6.20	0.00	160.00	250.00
345.00	2.50	250.00	235.00	5.70		160.00	300.00
350.00	0.00	300.00	3.20	250.00		212.00	5.00
400.00	-0.80	300.00	300.00	2.70		250.00	2.10
450.00	-1.90	300.00	300.00	-1.30		300.00	-2.00
500.00	-3.10	300.00	325.00	-2.40		300.00	-2.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
710024	710017	711007	711214	720112	720215	720223	720214	720214	720215	720223	720215	720213
A3	W5	A6	A7	R8	89	90	97	97	91	90	90	91
25.00	28.00	13.00	15.00	14.10	15.00	14.20	15.00	13.00	15.00	13.70	15.00	14.10
54.00	34.00	32.00	43.00	13.60	37.00	18.00	27.00	14.90	27.00	14.60	27.00	14.60
76.00	71.00	65.00	74.00	17.00	57.00	19.00	27.00	14.90	37.00	14.50	37.00	14.60
100.00	100.00	78.00	100.00	17.30	72.00	17.30	60.00	16.00	62.00	17.40	61.00	16.50
150.00	100.00	105.00	100.00	9.70	79.00	14.20	72.00	16.80	70.00	17.40	100.00	8.40
200.00	121.00	105.00	150.00	6.70	100.00	10.00	100.00	10.00	79.00	15.20	150.00	5.40
250.00	175.00	150.00	200.00	5.10	116.00	8.50	132.00	6.40	80.00	14.40	200.00	3.00
300.00	200.00	200.00	250.00	4.00	150.00	7.80	150.00	6.10	100.00	14.00	250.00	4.90
	234.00	250.00	250.00	2.90	200.00	3.20	172.00	5.20	150.00	14.50	275.00	1.10
	250.00	250.00	250.00	1.80	250.00	2.30	200.00	3.10	182.00	14.00	300.00	1.50
	250.00	250.00	250.00	1.40	275.00	1.80	250.00	2.10	200.00	14.60	250.00	1.40
	250.00	250.00	250.00	1.40	300.00	2.20	300.00	2.20	250.00	14.60	250.00	1.40

PROFILE 17

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
720811	720820	721017	721205	730103	730210	730210	730210	730210	730215	730210	730215	730215
02	03	00	95	06	06	06	06	06	06	06	06	06
15.00	15.00	14.00	15.00	13.50	15.00	15.00	15.00	14.00	15.00	15.00	15.00	15.00
25.00	14.70	14.50	60.00	18.30	18.30	14.20	20.00	14.80	56.00	18.50	15.00	14.10
31.00	14.30	66.00	14.00	16.90	25.00	14.70	32.00	14.40	71.00	17.10	52.00	14.80
60.00	17.90	73.00	17.40	12.70	34.00	14.50	56.00	18.20	79.00	12.30	52.00	16.50
75.00	14.30	77.00	13.60	10.00	60.00	18.20	70.00	17.50	85.00	11.30	72.00	17.40
78.00	12.20	100.00	9.50	100.00	10.00	16.80	80.00	13.00	89.00	14.00	78.00	17.00
100.00	8.20	152.00	8.20	50.00	3.50	13.20	80.00	1.80	150.00	14.00	80.00	13.00
125.00	5.50	183.00	5.50	100.00	1.50	10.30	100.00	1.80	150.00	14.00	80.00	13.00
148.00	5.10	250.00	5.10	106.00	0.30	100.00	100.00	6.90	181.00	3.80	88.00	11.10
164.00	5.10	250.00	5.10	125.00	2.90	104.00	100.00	3.10	200.00	4.50	100.00	6.50
200.00	2.80	290.00	2.80	250.00	5.40	171.00	170.00	3.40	221.00	5.20	150.00	5.50
250.00	1.20	275.00	1.20	300.00	7.70	200.00	250.00	2.00	256.00	4.90	200.00	3.00
278.00	1.20	278.00	1.20	300.00	2.40	300.00	300.00	2.00	256.00	4.90	256.00	3.00

LONG REACH ISLAND No. 4.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1A

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
610128	11:20	13	610212	12:00	15	610220	12:00	15	610304	12:00	17	610319	12:00	18
300.00	9:50	100.00	276.00	9:40	250.00	10.00	539.00	6.90	299.00	4.50	300.00	9.40	528.00	8.40
351.00	5.00	327.00	501.00	9:50	277.00	9:50	577.00	5.80	326.00	6.00	323.00	6.00	370.00	7.10
341.00	5.00	340.00	7.00	342.00	6.90	301.00	4:50	406.00	7.80	301.00	7.40	351.00	7.40	370.00
379.00	5.00	371.00	6.50	376.00	6.20	428.00	1.30	350.00	6.90	401.00	7.40	402.00	4.20	402.00
401.00	2.80	374.00	5.50	401.00	1.40	341.00	6.70	451.00	6.00	376.00	6.90	451.00	4.90	451.00
451.00	-1.70	403.00	2.50	452.00	-1.10	340.00	3.90	478.00	-2.20	400.00	2.80	478.00	-1.10	478.00
451.00	4.20	467.00	-1.20	466.00	-1.40	401.00	2.60	501.00	-1.00	461.00	0.90	501.00	-1.40	501.00
						475.00	0.80		451.00	0.90		475.00	0.80	
						475.00	-5.90		476.00	-2.20				

PROFILE 1A

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
610326	19:20	1200	610528	21:20	23	610613	12:00	23	610711	12:00	24	610723	12:00	25
301.00	9:20	250.00	10.10	4.00	250.00	10.20	200.00	15.60	201.00	15.50	225.00	12.00	251.00	10.00
325.00	7.80	275.00	9.00	151.00	10.20	350.00	9.00	276.00	9.80	226.00	11.90	251.00	9.80	274.00
351.00	7.80	301.00	9.00	349.00	10.20	350.00	7.30	328.00	9.70	250.00	9.40	300.00	9.00	301.00
379.00	5.80	325.00	8.20	390.00	10.20	401.00	8.30	348.00	7.70	274.00	9.20	328.00	7.80	328.00
426.00	2.90	402.00	5.00	401.00	8.00	457.00	8.00	375.00	6.30	375.00	6.20	401.00	6.40	401.00
476.00	2.90	462.00	5.00	476.00	1.80	475.00	1.90	428.00	7.00	401.00	6.00	427.00	6.80	427.00
501.00	-8.80	451.00	1.80	451.00	1.80	475.00	-5.90	478.00	1.00	455.00	2.20	476.00	3.60	456.00
						475.00	4.00	501.00	0.80	477.00	-1.10	501.00	1.90	476.00
						475.00	-5.00	502.00	-1.10	528.00	6.40	528.00	1.90	527.00
						475.00	5.50	502.00	-1.10	577.00	1.00	577.00	1.00	577.00
						526.00	-1.10		602.00	-8.00				

LONG BEACH ISLAND N.J.
 DATUM IS - SL MEASUREMENT IS FT

PROFILE 18

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
199.00	650119	16.50	179.00	650127	15.10	189.00	650125	193.00	650123	14.00	193.00	650121	194.00	15.20
201.00	650119	11.20	198.00	650127	7.00	206.00	650125	16.99	650123	15.40	222.00	650121	217.00	15.20
251.00	650119	10.20	208.00	650127	16.50	216.00	650125	16.99	650123	10.90	279.00	650121	272.00	16.10
276.00	650119	9.10	218.00	650127	11.20	237.00	650125	281.00	650123	9.50	321.00	650121	301.00	9.40
301.00	650119	8.90	239.00	650127	9.90	279.00	650125	281.00	650123	9.50	321.00	650121	301.00	9.40
327.00	650119	5.80	251.00	650127	8.90	279.00	650125	281.00	650123	9.50	321.00	650121	301.00	9.40
381.00	650119	4.80	251.00	650127	8.90	279.00	650125	281.00	650123	9.50	321.00	650121	301.00	9.40
429.00	650119	3.20	317.00	650127	5.60	352.00	650125	4.30	650123	4.30	372.00	650121	371.00	3.50
479.00	650119	2.60	328.00	650127	7.50	329.00	650125	8.10	650123	5.20	418.00	650121	402.00	1.50
479.00	650119	2.70	328.00	650127	7.50	329.00	650125	8.10	650123	5.20	418.00	650121	402.00	1.50
503.00	650119	2.10	377.00	650127	6.00	504.00	650125	5.10	650123	2.10	484.00	650121	474.00	2.50
			403.00	650127	3.90	494.00	650125	2.20	650123	1.90	484.00	650121	474.00	2.50
			453.00	650127	1.10									
			480.00	650127	0.20									
			505.00	650127	1.10									
			529.00	650127	1.60									

PROFILE 19

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
179.00	650119	15.00	205.00	650127	19.10	204.00	650125	215.00	650122	16.10	198.00	650120	250.00	14.50
216.00	650119	14.40	218.00	650127	19.70	216.00	650125	234.00	650122	12.10	205.00	650120	267.00	11.90
276.00	650119	12.90	238.00	650127	11.80	238.00	650125	250.00	650122	11.70	235.00	650120	301.00	9.70
291.00	650119	12.90	250.00	650127	11.00	250.00	650125	9.40	650122	9.40	251.00	650120	351.00	6.50
301.00	650119	11.80	301.00	650127	9.70	304.00	650125	9.40	650122	9.70	301.00	650120	389.00	2.90
325.00	650119	9.40	325.00	650127	1.10	326.00	650125	7.80	650122	8.50	351.00	650120	427.00	2.50
351.00	650119	6.90	402.00	650127	0.00	378.00	650125	6.30	650122	6.40	378.00	650120	462.00	0.60
401.00	650119	4.70	357.00	650127	9.10	401.00	650125	3.60	650122	2.40	390.00	650120	527.00	0.20
426.00	650119	3.00	377.00	650127	5.60	447.00	650125	4.20	650122	4.00	477.00	650120	552.00	2.90
452.00	650119	1.90	458.00	650127	0.00	462.00	650125	4.80	650122	4.80	477.00	650120	552.00	2.90
467.00	650119	1.90	467.00	650127	0.00	462.00	650125	4.80	650122	4.80	477.00	650120	552.00	2.90
482.00	650119	1.90	483.00	650127	0.00	462.00	650125	4.80	650122	4.80	477.00	650120	552.00	2.90
578.00	650119	2.90	578.00	650127	2.90	578.00	650125	2.90	650122	2.90	578.00	650120	578.00	2.90

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1A

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
218.00	17.10	203.00	15.40	250.00	15.40	260.00	16.10	260.00	17.60	260.00	16.30	265.00	17.90
250.00	19.20	250.00	15.30	280.00	10.00	250.00	25.00	250.00	17.80	260.00	16.30	265.00	17.90
266.00	15.60	274.00	11.20	301.00	8.90	258.00	15.30	265.00	11.80	265.00	11.80	266.00	12.60
271.00	11.90	301.00	7.80	325.00	9.40	278.00	15.10	281.00	8.20	300.00	11.50	266.00	12.60
300.00	8.70	324.00	5.00	351.00	3.00	340.00	9.60	350.00	5.30	350.00	4.70	349.00	6.20
326.00	7.00	351.00	3.20	380.00	6.80	351.00	6.50	400.00	2.80	400.00	2.20	364.00	6.50
351.00	5.60	374.00	2.40	402.00	3.30	401.00	3.50	450.00	1.80	450.00	1.80	450.00	2.50
374.00	3.80	402.00	1.40	427.00	1.40	424.00	1.70	500.00	1.20	500.00	1.70	500.00	1.50
426.00	1.00	453.00	1.50	452.00	1.20	462.00	1.80	504.00	1.20	500.00	1.20	500.00	1.20
481.00	1.80	478.00	1.40	478.00	1.40	502.00	1.80	504.00	1.20	500.00	1.20	500.00	1.20
501.00	1.80	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20
502.00	1.80	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20
527.00	1.10	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20

PROFILE 1B

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
218.00	17.10	203.00	15.40	250.00	15.40	260.00	16.10	260.00	17.60	260.00	16.30	265.00	17.90
250.00	19.20	250.00	15.30	280.00	10.00	250.00	25.00	250.00	17.80	260.00	16.30	265.00	17.90
266.00	15.60	274.00	11.20	301.00	8.90	258.00	15.30	265.00	11.80	265.00	11.80	266.00	12.60
271.00	11.90	301.00	7.80	325.00	9.40	278.00	15.10	281.00	8.20	300.00	11.50	266.00	12.60
300.00	8.70	324.00	5.00	351.00	3.00	340.00	9.60	350.00	5.30	350.00	4.70	349.00	6.20
326.00	7.00	351.00	3.20	380.00	6.80	351.00	6.50	400.00	2.80	400.00	2.20	364.00	6.50
351.00	5.60	374.00	2.40	402.00	3.30	401.00	3.50	450.00	1.80	450.00	1.80	450.00	2.50
374.00	3.80	402.00	1.40	427.00	1.40	424.00	1.70	500.00	1.20	500.00	1.70	500.00	1.50
426.00	1.00	453.00	1.50	452.00	1.20	462.00	1.80	504.00	1.20	500.00	1.20	500.00	1.20
481.00	1.80	478.00	1.40	478.00	1.40	502.00	1.80	504.00	1.20	500.00	1.20	500.00	1.20
501.00	1.80	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20
502.00	1.80	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20
527.00	1.10	501.00	1.40	526.00	1.40	503.00	1.80	502.00	1.20	500.00	1.20	500.00	1.20

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 18

DATE 691020	DATE 691114	DATE 691218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700624
SVY 6A	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74	SVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
200.00	190.00	15.20	206.00	237.00	15.60	182.00	184.00
17.60	231.00	18.70	228.00	250.00	16.00	200.00	200.00
239.00	17.60	228.00	18.70	250.00	16.00	200.00	15.70
202.00	205.00	18.90	250.00	17.60	16.00	242.00	229.00
264.00	15.00	18.90	18.90	16.00	269.00	262.00	249.00
300.00	264.00	15.00	300.00	300.00	10.00	290.00	240.00
8.50	300.00	10.70	350.00	8.10	298.00	300.00	253.00
334.00	9.90	295.00	6.90	325.00	6.10	300.00	263.00
370.00	6.80	350.00	6.50	350.00	6.10	300.00	17.00
334.00	6.80	350.00	6.50	350.00	6.10	300.00	17.00
370.00	6.80	350.00	6.50	350.00	6.10	300.00	17.00
375.00	5.00	400.00	4.70	400.00	4.20	400.00	400.00
400.00	2.50	450.00	2.80	450.00	1.40	377.00	350.00
429.00	1.10	500.00	2.20	500.00	1.70	400.00	400.00
459.00	6.00	550.00	6.60	550.00	5.70	400.00	5.10
459.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
500.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
550.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
600.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
650.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
700.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
750.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
800.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
850.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
900.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
950.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00
1000.00	2.20	550.00	2.40	550.00	1.20	500.00	450.00

PROFILE 18

DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710408	DATE 710624
SVY 76	SVY 77	SVY 78	SVY 79	SVY A0	SVY A1	SVY A2	SVY A3
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
200.00	15.60	14.60	200.00	200.00	15.80	230.00	150.00
15.60	17.00	18.10	222.00	280.00	16.50	242.00	200.00
200.00	17.00	17.10	250.00	300.00	17.20	250.00	15.80
17.60	205.00	17.10	250.00	300.00	17.20	250.00	15.80
0.50	300.00	0.80	261.00	310.00	19.00	300.00	17.50
350.00	9.00	350.00	9.00	350.00	17.70	350.00	5.90
350.00	9.00	350.00	9.00	350.00	17.70	350.00	5.90
370.00	4.80	425.00	5.80	430.00	265.00	270.00	277.00
400.00	4.80	425.00	5.80	430.00	265.00	270.00	277.00
440.00	3.40	318.00	7.60	410.00	13.40	450.00	4.60
450.00	3.40	318.00	7.60	410.00	13.40	450.00	4.60
450.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
500.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
550.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
600.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
650.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
700.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
750.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
800.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
850.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
900.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
950.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80
1000.00	1.80	382.00	6.50	440.00	9.70	500.00	3.80

LONG BEACH ISLAND #1-J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1A

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
71007	711214	720112	720215	720223	720313	720324	730314	730324	730314	730324	730314	730314
45 1200	47 1200	46 1200	47 1200	46 1200	49 1200	49 1200	9A 1200	9A 1200	9A 1200	9A 1200	9A 1200	9A 1200
15.00	14.20	18.10	15.10	15.60	18.50	14.90	18.50	15.10	15.10	18.10	15.00	14.80
20.00	15.50	20.00	15.70	20.00	20.00	15.80	20.00	15.50	15.50	21.00	19.00	19.80
23.00	17.20	25.00	17.40	18.50	23.50	19.00	22.00	18.20	20.00	22.00	20.00	19.70
28.00	17.50	257.00	17.10	19.70	20.50	19.40	20.30	19.50	20.20	19.10	18.20	18.50
28.00	17.10	240.00	15.50	279.00	10.40	242.00	17.90	266.00	300.00	9.10	262.00	17.40
300.00	4.70	286.00	10.70	300.00	10.50	283.00	11.50	282.00	12.50	350.00	400.00	9.90
372.00	4.90	307.00	4.80	326.00	10.80	300.00	11.10	300.00	10.00	400.00	3.80	377.00
381.00	7.00	339.00	10.00	350.00	7.70	400.00	4.20	376.00	6.00	450.00	2.30	407.00
400.00	4.50	350.00	7.70	400.00	3.40	450.00	1.70	350.00	3.80	500.00	4.00	400.00
450.00	4.80	400.00	2.40	450.00	1.40	450.00	-0.30	500.00	3.80	500.00	4.00	400.00
550.00	-0.60	450.00	-0.20	500.00	0.20	500.00	1.50	500.00	1.50	500.00	1.50	450.00
600.00	-1.80	550.00	-0.20	580.00	0.20	580.00	1.50	500.00	1.50	500.00	1.50	550.00
600.00	-1.80	600.00	-1.00	600.00	0.20	600.00	1.50	550.00	1.50	550.00	1.50	600.00
600.00	-2.60	600.00	-2.60	600.00	0.20	600.00	1.50	550.00	1.50	550.00	1.50	600.00

PROFILE 1A

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
720224	721205	721017	721205	730103	730103	730103	730103	730103	730103	730324	730314	730314
93 1000	95 1200	9A 1200	95 1200	9A 1300	9A 1300	9A 1300	97 1000	97 1000	9A 1200	9A 1000	9A 1000	9A 1000
200.00	15.70	150.00	14.20	150.00	15.70	150.00	14.20	150.00	15.70	200.00	15.70	190.00
230.00	17.20	200.00	15.60	200.00	18.20	200.00	15.30	200.00	18.20	200.00	15.30	190.00
240.00	17.50	240.00	18.90	240.00	18.20	240.00	17.50	250.00	18.60	240.00	18.60	240.00
289.00	15.50	280.00	17.80	280.00	18.50	280.00	17.50	280.00	17.70	280.00	17.70	280.00
289.00	15.50	300.00	10.50	280.00	9.70	227.00	10.80	280.00	11.50	280.00	11.50	280.00
300.00	9.90	350.00	0.50	295.00	10.70	333.00	7.50	207.00	19.50	300.00	19.50	300.00
350.00	4.20	350.00	3.10	300.00	9.30	350.00	5.80	260.00	17.70	328.00	7.90	350.00
377.00	4.80	400.00	1.10	350.00	4.40	396.00	0.60	280.00	10.80	350.00	3.80	421.00
400.00	5.00	500.00	1.00	400.00	2.40	450.00	0.50	300.00	9.60	370.00	5.80	450.00
450.00	1.60	525.00	-1.90	450.00	1.40	500.00	1.00	350.00	4.40	400.00	2.90	450.00
500.00	-0.60	500.00	-0.60	500.00	0.80	500.00	1.80	383.00	1.80	450.00	1.80	450.00
550.00	-1.40	550.00	-1.40	600.00	0.20	600.00	1.80	400.00	1.80	500.00	1.80	500.00
550.00	-1.40	600.00	-1.40	600.00	0.20	600.00	1.80	450.00	1.80	550.00	1.80	500.00
600.00	-1.40	600.00	-1.40	600.00	0.20	600.00	1.80	450.00	1.80	550.00	1.80	500.00

LONG BEACH ISLAND P.I.J.
DATUM IS PSL MEASUREMENT IS FT

PROFILE 18

DATE	TIDUJA	DATE	TRC&IP
SVY	TIME	SVY	TIME
101A	1300	101A	1300
190.00	15.10	190.50	15.10
222.00	18.10	200.00	15.90
235.00	18.80	220.00	18.20
263.00	17.90	262.00	18.20
280.00	12.10	283.00	11.70
300.00	9.00	300.00	9.90
350.00	5.40	325.00	6.10
400.00	4.10	362.00	4.50
450.00	2.90	400.00	6.50
500.00	-1.00	425.00	3.90
525.00	-1.60	470.00	-1.50
		500.00	-1.10
		510.00	-1.80

PROFILE 19

DATE	621002	DATE	621011	DATE	621023	DATE	621029	DATE	621108	DATE	621210	DATE	621115	DATE	621121
SVY	TIME	SVY	TIME	SVY	TIME	SVY	TIME	SVY	TIME	SVY	TIME	SVY	TIME	SVY	TIME
3	1200	4	1200	5	1200	6	1200	7	1200	7	1200	8	1200	8	1200
71.00	7.30	122.00	9.00	116.00	10.60	118.00	10.00	112.00	10.80	107.00	11.00	04.00	6.50	293.00	5.00
115.00	10.50	125.00	7.90	121.00	9.60	125.00	9.30	119.00	11.60	122.00	12.20	30.00	6.80	276.00	4.00
135.00	10.50	191.00	7.00	119.00	8.20	139.00	8.20	131.00	8.70	135.00	9.10	06.00	6.80	300.00	3.10
151.00	9.80	215.00	8.00	189.00	7.40	192.00	7.40	194.00	8.00	185.00	7.70	50.00	6.30	333.00	0.00
158.00	8.40	268.00	4.20	210.00	8.00	236.00	8.00	193.00	8.20	216.00	5.30	75.00	7.40	351.00	-1.00
182.00	7.20	301.00	1.30	242.00	8.70	263.00	5.00	224.00	8.10	260.00	5.90	90.00	9.00		
229.00	7.80	321.00	-0.30	265.00	4.80	297.00	2.00	271.00	4.00	286.00	4.00	90.00	10.80		
275.00	4.80	330.00	-1.20	266.00	2.80	332.00	-1.50	311.00	2.00	320.00	4.00	105.00	11.00		
310.00	1.40			303.00	0.10			367.00	-1.50	376.00	-1.80	121.00	12.80		
348.00	-1.70									409.00	-5.00	141.00	12.20		
												147.00	9.00		
												170.00	7.50		
												176.00	7.00		
												213.00	7.00		
												228.00	6.50		
												250.00	5.70		
												277.00	4.80		
												301.00	2.00		
												329.00	0.80		
												351.00	-1.10		

LONG BEACH ISLAND N.J.
 DATUM IS PSL MEASUREMENT IS - T

PROFILE 19

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
630128	11	1200	630204	12	1200	630212	13	1200	630220	14	1200	630226	15	1200
150+00	8.30		151+00	12.30		151+00	151+00		178+00	7.40		230+00	6.20	
162+00	7.20		178+00	8.40		178+00	7.70		200+00	7.10		251+00	6.10	
174+00	7.50		185+00	7.70		185+00	157+00		236+00	6.60		277+00	5.20	
201+00	5.50		201+00	6.40		201+00	163+00		256+00	6.50		285+00	3.50	
232+00	5.20		227+00	5.90		227+00	167+00		271+00	6.20		292+00	2.90	
252+00	4.80		257+00	6.80		257+00	171+00		275+00	5.50		297+00	1.50	
312+00	3.80		275+00	6.80		275+00	180+00		301+00	2.50		302+00	2.90	
353+00	4.50		300+00	5.10		300+00	185+00		325+00	1.70		326+00	1.10	
376+00	2.20		305+00	4.90		305+00	190+00		351+00	0.20		351+00	0.20	
			327+00	1.90		327+00	195+00		377+00	0.20		377+00	0.20	
			352+00	1.20		352+00	195+00		401+00	0.20		401+00	0.20	
			376+00	1.20		376+00	195+00							

PROFILE 19

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
630128	11	1200	630204	12	1200	630212	13	1200	630220	14	1200	630226	15	1200
168+00	7.40		167+00	7.40		167+00	75+00		124+00	15.50		276+00	6.90	
201+00	6.70		175+00	6.90		175+00	105+00		170+00	7.90		300+00	6.70	
230+00	6.80		202+00	6.50		202+00	124+00		201+00	6.70		326+00	5.90	
277+00	6.50		226+00	6.60		226+00	168+00		247+00	6.40		352+00	4.80	
287+00	6.30		252+00	6.30		252+00	200+00		275+00	7.10		375+00	4.80	
329+00	2.40		276+00	6.80		276+00	210+00		301+00	7.00		402+00	1.10	
351+00	1.20		303+00	4.80		303+00	245+00		325+00	6.00				
402+00	1.60		325+00	2.70		325+00	276+00		352+00	2.10				
			351+00	1.50		351+00	325+00		375+00	0.50				
			376+00	1.50		376+00	376+00		400+00	0.20				
			402+00	1.20		402+00	402+00							

LONG BEACH ISLAND N.J.
DATUM IS HSL MEASUREMENT TS FT

PROFILE 19

DATE 650119	DATE 650227	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660321	DATE 660327
SRVY '03	SRVY '04	SRVY '05	SRVY '06	SRVY '07	SRVY '08	SRVY '09	SRVY '09
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
187.00	92.00	104.80	93.00	10.90	168.00	124.70	68.00
201.00	135.00	132.70	126.00	15.90	189.00	84.80	98.00
251.00	171.00	169.00	166.00	22.60	201.00	7.60	101.00
272.00	6.00	187.00	187.00	6.60	191.00	6.50	200.00
302.00	5.80	202.00	201.00	7.90	211.00	9.20	251.00
327.00	4.80	251.00	251.00	6.90	302.00	7.80	314.00
353.00	5.80	301.00	302.00	6.30	325.00	6.00	326.00
381.00	7.40	302.00	302.00	6.30	352.00	5.20	352.00
403.00	3.30	372.00	372.00	6.10	403.00	2.10	402.00
428.00	4.50	403.00	403.00	6.10	451.00	1.80	452.00
		429.00	429.00	6.40	479.00	-2.90	472.00
		446.00	478.00	-1.50			472.00
							452.00
							452.00

PROFILE 19

DATE 670116	DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 681009
SRVY '61	SRVY '63	SRVY '64	SRVY '65	SRVY '66	SRVY '67	SRVY '68	SRVY '69
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
130.00	150.00	129.00	130.00	135.00	92.00	87.00	40.00
150.00	169.00	154.20	149.00	133.80	129.00	134.50	150.00
171.00	142.00	176.00	180.00	153.00	152.00	161.00	160.00
191.00	114.00	225.00	225.00	150.00	170.00	184.00	190.00
210.00	84.00	225.00	250.00	135.00	198.00	200.00	200.00
226.00	7.20	276.00	276.00	162.00	251.00	350.00	250.00
251.00	7.00	301.00	301.00	192.00	288.00	400.00	300.00
251.00	7.80	352.00	352.00	215.00	350.00	400.00	300.00
277.00	7.00	379.00	379.00	240.00	380.00	424.00	320.00
301.00	7.40	401.00	401.00	260.00	400.00	424.00	320.00
326.00	7.40	452.00	452.00	280.00	400.00	424.00	320.00
352.00	6.90	402.00	402.00	300.00	400.00	424.00	320.00
381.00	7.20	427.00	427.00	321.00	400.00	424.00	320.00
402.00	5.60	452.00	452.00	340.00	400.00	424.00	320.00
428.00	1.80	452.00	452.00	360.00	400.00	424.00	320.00
		478.00	478.00	380.00	400.00	424.00	320.00
				400.00	400.00	424.00	320.00
				420.00	400.00	424.00	320.00
				440.00	400.00	424.00	320.00

LOGG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 19

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
60052	60053	60111	60121	60121	60121	60213	60213	60304	60304	60528	60528	60628	60628
SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
90.00	12.50	100.00	12.50	130.00	14.70	100.00	13.20	130.00	14.70	91.00	12.10	92.00	12.20
130.00	14.40	130.00	14.40	160.00	16.20	135.00	15.00	160.00	16.20	120.00	14.40	130.00	15.90
160.00	14.70	160.00	15.60	175.00	14.70	175.00	14.50	192.00	11.20	150.00	14.90	161.00	15.90
190.00	10.70	190.00	10.70	190.00	10.80	200.00	10.40	200.00	10.30	167.00	14.20	170.00	12.60
200.00	9.70	250.00	6.70	250.00	6.70	219.00	8.60	225.00	8.80	180.00	11.10	200.00	6.50
205.00	7.50	300.00	5.00	250.00	6.70	250.00	8.10	300.00	6.60	200.00	10.00	230.00	7.90
300.00	4.70	350.00	4.20	300.00	6.70	275.00	7.60	300.00	3.90	250.00	7.20	250.00	7.60
330.00	4.90	400.00	3.50	350.00	6.30	335.00	6.50	350.00	2.90	300.00	7.20	280.00	7.60
350.00	5.90	425.00	3.50	375.00	4.60	350.00	5.60	350.00	2.40	350.00	7.50	285.00	7.70
375.00	3.90	450.00	3.10	425.00	3.50	400.00	2.70	400.00	2.70	325.00	7.10	320.00	7.70
425.00	2.70	475.00	1.80	450.00	0.00	425.00	1.20	400.00	-1.30	375.00	6.80	350.00	6.10
450.00	2.30	475.00	0.75	450.00	-1.30	450.00	0.00	450.00	-1.30	375.00	6.80	350.00	6.10
450.00	2.30	475.00	-1.30	450.00	-1.30	450.00	-1.10	450.00	-2.50	450.00	-2.50	450.00	-1.30

PROFILE 19

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
70052	70053	70111	70121	70121	70121	70213	70213	70304	70304	70528	70528	70628	70628
SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
90.00	12.20	50.00	7.00	50.00	7.10	100.00	12.70	60.00	7.10	60.00	7.30	55.00	7.20
130.00	14.20	90.00	11.80	92.00	11.80	150.00	13.40	92.00	11.50	91.00	11.90	100.00	13.70
160.00	15.60	100.00	13.20	100.00	13.30	175.00	15.10	96.00	12.70	130.00	13.30	160.00	14.50
190.00	13.90	130.00	10.40	129.00	13.80	200.00	11.10	125.00	12.10	130.00	14.20	160.00	15.60
160.00	15.60	160.00	15.30	140.00	14.90	140.00	9.30	150.00	13.60	145.00	15.10	185.00	12.20
170.00	13.90	190.00	11.00	175.00	15.20	250.00	7.80	173.00	15.30	185.00	12.50	200.00	11.10
190.00	11.60	240.00	8.30	200.00	10.40	300.00	7.20	200.00	10.70	200.00	11.80	200.00	7.00
225.00	8.30	265.00	6.70	220.00	11.00	330.00	4.20	250.00	11.20	260.00	8.40	200.00	7.00
230.00	7.40	290.00	6.30	250.00	8.00	375.00	1.00	250.00	7.60	265.00	7.00	300.00	7.00
250.00	4.30	350.00	4.10	320.00	4.60	400.00	-1.40	300.00	7.80	355.00	6.20	400.00	4.10
295.00	3.50	350.00	3.30	300.00	3.20	500.00	-1.40	300.00	7.80	400.00	3.40	450.00	2.0
300.00	1.10	400.00	1.70	350.00	4.80	500.00	5.30	330.00	4.50	450.00	-1.40	500.00	-1.40
325.00	4.70	425.00	3.80	400.00	4.80	460.00	5.80	350.00	3.20	450.00	5.80	500.00	-1.40
400.00	1.50	475.00	0.80	450.00	-1.20	450.00	2.60	450.00	-2.60	450.00	-3.50	450.00	-1.10
450.00	-1.50	475.00	-2.20	450.00	-1.90	450.00	-2.40	470.00	-3.50	450.00	-3.50	450.00	-1.10

LONG BEACH ISLAND M.S.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 19

DATE SVY	01012 TIME	DATE SVY	701207 TIME	DATE SVY	701218 TIME	DATE SVY	701012 TIME	DATE SVY	710208 TIME	DATE SVY	710304 TIME	DATE SVY	710408 TIME	DATE SVY	710620 TIME
57.00	7.10	57.00	7.20	57.00	7.20	57.00	7.10	56.00	12.90	56.00	7.10	100.00	13.00	100.00	12.90
100.00	13.80	100.00	13.00	100.00	13.00	100.00	9.00	100.00	15.50	100.00	9.20	100.00	13.10	100.00	13.00
157.00	15.20	157.00	15.10	157.00	15.10	157.00	92.00	157.00	12.70	157.00	9.20	150.00	15.10	150.00	15.50
187.00	15.80	187.00	15.70	187.00	15.70	187.00	11.70	187.00	9.70	187.00	11.30	180.00	13.70	185.00	12.50
200.00	11.20	200.00	12.00	200.00	12.00	200.00	111.00	200.00	7.70	200.00	13.90	220.00	13.60	200.00	12.00
231.00	8.10	231.00	7.50	231.00	7.50	231.00	134.00	231.00	6.50	231.00	13.50	240.00	9.70	210.00	13.10
350.00	7.20	350.00	8.50	350.00	7.80	350.00	165.00	350.00	5.00	350.00	15.50	240.00	8.70	250.00	8.50
350.00	7.00	350.00	2.80	350.00	7.70	350.00	200.00	350.00	2.60	350.00	11.50	300.00	6.70	300.00	7.20
372.00	8.00	372.00	-1.50	372.00	7.30	372.00	223.00	372.00	5.30	372.00	10.50	380.00	4.40	300.00	7.20
400.00	3.90	400.00	5.20	400.00	4.60	400.00	250.00	400.00	-1.10	400.00	7.60	400.00	2.50	400.00	-2.70
450.00	1.80	450.00	2.70	450.00	4.20	450.00	300.00	450.00	1.10	450.00	7.00	450.00	-1.20	400.00	-6.50
500.00	-1.80	500.00	4.20	500.00	3.00	500.00	323.00	500.00	6.10	500.00	5.70	450.00	4.00	400.00	-2.70
600.00	-2.80	600.00	4.00	600.00	4.00	600.00	370.00	600.00	6.10	600.00	4.00	450.00	2.50	400.00	-2.70
650.00	-2.70	650.00	2.50	650.00	2.50	650.00	450.00	650.00	6.90	650.00	2.40	475.00	4.90	450.00	-2.70
			475.00		475.00		-2.10		515.00		515.00		500.00		-1.60

PROFILE 19

DATE SVY	710017 TIME	DATE SVY	711007 TIME	DATE SVY	711214 TIME	DATE SVY	720112 TIME	DATE SVY	720215 TIME	DATE SVY	720223 TIME	DATE SVY	720315 TIME	DATE SVY	720511 TIME
100.00	12.40	540.00	7.10	62.00	8.30	61.00	4.20	60.00	7.40	62.00	8.20	60.00	9.50	57.00	7.50
150.00	13.60	100.00	13.50	150.00	13.50	100.00	12.90	95.00	12.50	100.00	12.40	70.00	9.50	100.00	13.40
184.00	15.50	134.00	13.30	150.00	13.90	165.00	15.30	100.00	13.00	131.00	14.00	100.00	12.50	125.00	13.90
200.00	12.30	150.00	14.00	167.00	15.50	200.00	12.40	120.00	13.80	140.00	13.00	140.00	13.10	140.00	13.50
216.00	13.10	158.00	15.50	189.00	12.70	224.00	12.30	147.00	13.40	165.00	15.00	165.00	15.40	150.00	15.10
257.00	8.00	190.00	12.10	200.00	12.30	254.00	8.30	165.00	15.60	200.00	12.40	200.00	12.70	210.00	13.70
300.00	7.00	200.00	12.60	220.00	12.70	300.00	7.80	189.00	12.80	232.00	11.70	220.00	12.20	180.00	13.10
331.00	6.80	207.00	13.30	250.00	8.20	349.00	6.10	200.00	12.80	268.00	8.00	265.00	6.00	200.00	6.80
357.00	6.60	250.00	4.20	300.00	8.00	357.00	7.60	218.00	11.80	300.00	6.50	300.00	6.70	300.00	7.40
350.00	5.20	300.00	6.70	350.00	5.80	375.00	2.90	282.00	9.30	343.00	6.00	340.00	6.80	343.00	5.30
400.00	2.20	310.00	9.30	400.00	2.10	400.00	8.90	250.00	7.80	360.00	3.80	350.00	5.80	350.00	4.70
450.00	-8.80	350.00	5.70	450.00	-2.80	420.00	8.00	330.00	7.10	410.00	4.20	450.00	3.80	450.00	3.70
450.00	-1.70	450.00	1.70	450.00	4.50	450.00	-1.80	350.00	6.10	450.00	-2.30	500.00	1.80	450.00	-1.70
500.00	-3.30	500.00	-3.30	500.00	-2.50	500.00	-6.00	400.00	2.70	463.00	-1.50	500.00	-1.20	375.00	-2.80
			475.00		475.00		-2.30		-2.30						

LONG BEACH ISLAND N.W.J.
DATUM IS HSL MEASUREMENT IS FT

PROFILE 19

DATE SVBY TIME	720824	DATE SVBY TIME	721017	DATE SVBY TIME	721205	DATE SVBY TIME	730103	DATE SVBY TIME	730214	DATE SVBY TIME	730310	DATE SVBY TIME	730325	DATE SVBY TIME	730403
59.00	7.20	60.00	7.00	60.00	7.50	60.00	7.20	60.00	7.50	59.00	7.10	60.00	7.10	60.00	7.00
100.00	12.70	100.00	12.50	100.00	12.40	100.00	12.40	100.00	12.40	100.00	12.60	90.00	90.00	100.00	12.70
128.00	10.00	129.00	13.00	135.00	13.60	132.00	13.70	105.00	13.10	129.00	10.40	100.00	100.00	128.00	13.40
138.00	13.30	163.00	13.10	160.00	15.10	150.00	15.30	165.00	14.80	149.00	13.50	174.00	174.00	162.00	13.00
162.00	15.20	200.00	13.20	200.00	16.00	185.00	15.50	191.00	13.30	162.00	15.10	190.00	12.60	161.00	15.00
200.00	13.10	217.00	13.80	217.00	18.00	192.00	15.80	200.00	10.60	186.00	10.10	185.00	14.90	201.00	10.00
200.00	12.50	240.00	9.20	230.00	9.30	218.00	13.00	253.00	10.80	240.00	10.00	195.00	13.50	209.00	10.70
260.00	8.70	300.00	9.20	350.00	9.10	250.00	9.50	300.00	5.40	250.00	8.90	195.00	13.50	209.00	10.70
333.00	8.40	375.00	9.90	400.00	1.50	300.00	6.50	350.00	0.40	290.00	6.90	200.00	10.60	300.00	6.10
356.00	7.00	375.00	3.20	450.00	-0.90	350.00	5.20	400.00	0.00	290.00	6.90	200.00	10.60	300.00	6.10
400.00	3.10	400.00	2.20	475.00	-2.50	450.00	1.50	450.00	-1.80	337.00	4.20	350.00	1.20	400.00	-2.50
450.00	-1.50	425.00	0.70	475.00	-2.50	450.00	1.50	450.00	-1.80	337.00	4.20	350.00	1.20	400.00	-2.50
475.00	-2.70	450.00	-1.40	475.00	-2.50	450.00	1.50	450.00	-1.80	337.00	4.20	350.00	1.20	400.00	-2.50

PROFILE 19

DATE SVBY TIME	730018	DATE SVBY TIME	730412
60.00	7.50	60.00	7.90
100.00	12.70	100.00	12.90
128.00	10.10	128.00	14.00
149.00	12.90	148.00	12.70
165.00	15.00	158.00	10.70
180.00	10.00	175.00	10.50
200.00	10.70	187.00	13.70
219.00	13.00	200.00	10.60
255.00	8.40	210.00	13.20
300.00	4.90	250.00	9.70
330.00	3.10	275.00	7.70
350.00	1.70	278.00	7.60
400.00	0.70	332.00	5.00
450.00	-1.00	350.00	5.70
		400.00	3.00
		425.00	1.00
		425.00	-1.00

LONG REACH ISLAND, N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 20

DATE 621002	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 630115	DATE 630115
SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8	SRVY 9	SRVY 9
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
55.60	158.00	134.00	158.00	184.00	161.00	6.00	6.00
127.00	11.00	177.00	176.00	104.20	155.00	50.00	50.00
157.00	101.00	104.60	104.60	134.30	166.00	124.00	124.00
175.00	84.90	104.60	208.00	184.00	184.00	104.00	104.00
209.00	83.00	82.20	4.30	184.00	10.50	104.00	104.00
241.00	57.70	82.20	7.70	162.00	8.30	150.00	150.00
281.00	240.00	82.20	251.00	8.10	183.00	6.30	6.30
325.00	1.40	54.00	278.00	5.10	215.00	15.00	15.00
		246.00	33.50	19.00	241.00	4.00	4.00
		246.00	240.00	3.10	176.00	136.00	136.00
		321.00	240.00	3.10	176.00	136.00	136.00
		4.20	361.00	-1.60	319.00	1.90	1.90
					187.00	187.00	187.00
					425.00	425.00	425.00
					226.00	226.00	226.00
					360.00	360.00	360.00
					327.00	327.00	327.00
					352.00	352.00	352.00
					376.00	376.00	376.00

PROFILE 20

DATE 630128	DATE 630204	DATE 630212	DATE 630220	DATE 630226	DATE 630308	DATE 630311	DATE 630319
SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16	SRVY 16	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
188.00	175.00	9.90	203.00	9.90	203.00	7.90	250.00
228.00	9.00	9.20	250.00	7.70	254.00	7.60	279.00
258.00	8.00	8.80	303.00	2.60	288.00	4.80	300.00
260.00	8.10	226.00	253.00	9.00	328.00	6.60	328.00
275.00	7.90	253.00	375.00	-1.90	350.00	-1.70	376.00
302.00	3.50	306.00	425.00	0.00	376.00	-1.60	401.00
325.00	1.80	306.00	325.00	3.80	376.00	-1.60	401.00
351.00	-0.70	351.00	376.00	1.60	376.00	-1.60	376.00
376.00	-3.00	376.00	401.00	-2.00	401.00	-1.60	401.00
					200.00	4.90	250.00
					251.00	7.70	279.00
					300.00	5.10	300.00
					300.00	-1.10	353.00
					352.00	-1.00	377.00
					401.00	-1.60	401.00

LONG BEACH ISLAND N.M.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE PD

DATE 630326	DATE 610000	DATE 630528	DATE 630613	DATE 610625	DATE 630711	DATE 630723	DATE 610806
SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
201.00	241.00	6.50	172.00	11.00	179.00	9.00	220.00
522.00	7.90	6.00	178.00	9.10	201.00	7.00	251.00
301.00	3.20	100.00	200.00	7.10	227.00	6.30	276.00
350.00	-0.90	124.00	225.00	6.50	247.00	6.00	302.00
384.00	-1.20	107.00	250.00	5.60	277.00	3.00	302.00
		155.00	275.00	3.50	302.00	-0.20	326.00
		172.00	300.00	-0.20	327.00	-0.80	
		178.00	325.00	-1.10			
		201.00	7.30				
		228.00	6.30				
		251.00	5.90				
		276.00	4.30				
		320.00	1.00				
		327.00	-1.00				

PROFILE PD

DATE 630820	DATE 610900	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 610115
SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
173.00	10.20	202.00	5.30	173.00	174.00	90.00	250.00
181.00	4.70	222.00	5.10	206.00	177.00	183.00	260.00
202.00	2.90	252.00	5.80	520.00	5.90	186.00	272.00
251.00	0.90	272.00	1.00	578.00	2.50	188.00	283.00
320.00	0.00	320.00	3.00	304.00	1.00	178.00	291.00
325.00	-1.10	353.00	-1.50	322.00	-0.60	191.00	300.00
						202.00	307.00
						227.00	310.00
						250.00	310.00
						276.00	320.00
						303.00	320.00
						328.00	320.00
						378.00	320.00
							277.00
							302.00
							318.00
							321.00
							370.00

LONG BEACH ISLAND N.J.
 DATUM IS WSL MEASUREMENT IS ET

PROFILE 20

DATE 6/0212	DATE 6/0310	DATE 6/0407	DATE 6/0525	DATE 6/0623	DATE 6/0629	DATE 6/0629	DATE 6/0629	DATE 6/1201
SVY 35	SVY 36	SVY 37	SVY 38	SVY 39	SVY 40	SVY 41	SVY 42	SVY 43
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
183.00	166.00	9.30	125.00	157.00	130.00	11.00	127.00	134.00
202.00	5.70	122.00	131.00	183.00	9.50	150.00	16.50	174.00
217.00	5.70	131.00	149.00	203.00	8.30	162.00	151.00	171.00
252.00	15.80	136.00	162.00	251.00	7.10	182.00	170.00	176.00
277.00	0.00	151.00	162.00	258.00	5.60	203.00	176.00	260.00
302.00	0.00	180.00	182.00	276.00	3.70	243.00	201.00	260.00
326.00	0.00	201.00	201.00	276.00	0.00	261.00	226.00	262.00
342.00	0.00	226.00	226.00	303.00	0.00	261.00	246.00	302.00
374.00	0.00	303.00	303.00	320.00	0.00	261.00	277.00	302.00
		303.00	276.00	4250	0.00	261.00	302.00	302.00
		330.00	297.00	5.80			302.00	302.00
		353.00	324.00	3.50			324.00	324.00
			353.00	3.50			353.00	353.00

PROFILE 20

DATE 6/0119	DATE 6/0127	DATE 6/0807	DATE 6/1027	DATE 6/1222	DATE 6/0615	DATE 6/0621	DATE 6/0622
SVY 43	SVY 44	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49	SVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
179.00	124.00	124.00	112.00	184.00	9.80	125.00	140.00
201.00	6.00	150.00	150.00	201.00	8.30	182.00	174.00
227.00	4.00	142.00	147.00	240.00	6.30	182.00	194.00
302.00	2.80	186.00	186.00	240.00	6.00	182.00	241.00
328.00	0.00	201.00	200.00	277.00	5.00	201.00	277.00
352.00	0.00	226.00	226.00	302.00	2.90	251.00	302.00
		226.00	226.00	302.00	0.00	302.00	302.00
		302.00	302.00	393.00	0.00	302.00	393.00
		327.00	327.00	427.00	0.00	327.00	427.00
		352.00	352.00	477.00	0.00	352.00	477.00

LONG BEACH ISLAND N+J.
 DATUM IS MSL MEASUREMENT IS FT.

PROFILE 20

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
870116	870510	870920	871219	880117	880227	880427	880528	880627	880628	880629	880629	880629	880629
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
161.00	133.00	148.00	133.00	147.00	150.00	141.00	164.50	155.00	164.50	155.00	164.50	155.00	164.50
195.00	156.00	176.00	156.00	167.00	167.00	151.00	164.50	146.00	164.50	155.00	164.50	155.00	164.50
211.00	175.00	201.00	185.00	184.00	184.00	184.00	13.70	184.00	146.00	184.00	146.00	184.00	146.00
227.00	201.00	250.00	201.00	205.00	205.00	200.00	9.60	200.00	146.00	200.00	146.00	200.00	146.00
278.00	225.00	276.00	251.00	250.00	250.00	250.00	6.50	250.00	200.00	250.00	200.00	250.00	200.00
292.00	243.00	301.00	276.00	276.00	276.00	276.00	4.80	276.00	200.00	276.00	200.00	276.00	200.00
324.00	278.00	342.00	302.00	302.00	302.00	302.00	-1.30	302.00	250.00	302.00	250.00	302.00	250.00
353.00	324.00	402.00	324.00	324.00	324.00	324.00	-1.30	324.00	300.00	324.00	300.00	324.00	300.00
392.00	351.00	402.00	351.00	351.00	351.00	351.00	-2.50	351.00	300.00	351.00	300.00	351.00	300.00
	372.00		372.00	372.00	372.00	372.00		372.00	350.00	372.00	350.00	372.00	350.00
	402.00		402.00	402.00	402.00	402.00		402.00	400.00	402.00	400.00	402.00	400.00

PROFILE 20

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
890123	890513	891219	890115	890213	890304	890528	890528	890528	890528	890528	890528	890528	890528
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
135.00	135.00	147.00	130.00	134.00	131.00	164.50	164.50	131.00	164.50	131.00	164.50	131.00	164.50
155.00	155.00	160.00	165.00	165.00	164.30	164.50	164.50	151.00	164.50	151.00	164.50	151.00	164.50
180.00	185.00	170.00	187.00	187.00	187.00	187.00	187.00	177.00	187.00	177.00	187.00	177.00	187.00
210.00	205.00	205.00	205.00	205.00	19.50	205.00	205.00	225.00	205.00	225.00	205.00	225.00	205.00
280.00	300.00	294.00	294.00	294.00	7.30	294.00	294.00	250.00	294.00	250.00	294.00	250.00	294.00
281.00	335.00	350.00	310.00	300.00	6.60	300.00	300.00	200.00	300.00	200.00	300.00	200.00	300.00
300.00	350.00	375.00	350.00	350.00	5.90	350.00	350.00	250.00	350.00	250.00	350.00	250.00	350.00
325.00	375.00	400.00	375.00	375.00	3.10	375.00	375.00	300.00	375.00	300.00	375.00	300.00	375.00
350.00	400.00	400.00	400.00	400.00	-3.50	400.00	400.00	300.00	400.00	300.00	400.00	300.00	400.00
375.00	400.00	400.00	400.00	400.00	-3.00	400.00	400.00	350.00	400.00	350.00	400.00	350.00	400.00
	400.00		400.00	400.00	-3.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
	400.00		400.00	400.00	-3.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 20

DATE	TIME	DATE	TIME
740714	101	740714	10X
	112		1100
	120		1200
	130		1300
	140		1400
	150		1500
	160		1600
	170		1700
	180		1800
	190		1900
	200		2000
	210		2100
	220		2200
	230		2300
	240		2400
	250		2500
	260		2600
	270		2700
	280		2800
	290		2900
	300		3000
	310		3100
	320		3200
	330		3300
	340		3400
	350		3500
	360		3600
	370		3700
	380		3800
	390		3900
	400		4000
	410		4100
	420		4200
	430		4300
	440		4400
	450		4500
	460		4600
	470		4700
	480		4800
	490		4900
	500		5000
	510		5100
	520		5200
	530		5300
	540		5400
	550		5500
	560		5600
	570		5700
	580		5800
	590		5900
	600		6000
	610		6100
	620		6200
	630		6300
	640		6400
	650		6500
	660		6600
	670		6700
	680		6800
	690		6900
	700		7000
	710		7100
	720		7200
	730		7300
	740		7400
	750		7500
	760		7600
	770		7700
	780		7800
	790		7900
	800		8000
	810		8100
	820		8200
	830		8300
	840		8400
	850		8500
	860		8600
	870		8700
	880		8800
	890		8900
	900		9000
	910		9100
	920		9200
	930		9300
	940		9400
	950		9500
	960		9600
	970		9700
	980		9800
	990		9900
	1000		10000

PROFILE 21

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
421002	3	421011	4	421024	5	421029	6	421104	7	421210	8	450115	9
	1200		1200		1200		1200		1200		1200		1200
13.00	0.50	25.00	9.00	76.00	4.10	-1.00	11.50	0.00	0.50	11.00	4.50	0.00	10.10
81.00	0.30	73.00	6.50	124.00	7.50	17.00	8.90	76.00	5.10	70.00	6.50	4.00	8.50
184.00	5.00	117.00	4.00	189.00	7.00	40.00	6.00	62.00	4.50	114.00	6.50	15.00	8.10
181.00	7.50	168.00	7.30	203.00	1.90	82.00	0.20	102.00	0.50	149.00	7.20	51.00	7.20
234.00	4.00	220.00	6.50	247.00	-0.40	118.00	4.10	110.00	6.00	217.00	5.70	101.00	5.50
281.00	2.60	265.00	1.70			162.00	6.60	169.00	7.00	305.00	-1.10	171.00	7.10
352.00	-2.90	242.00	-0.30			202.00	6.90	243.00	3.10	359.00	-1.00	201.00	4.50
347.00	-1.60	348.00	-0.80			223.00	5.50	285.00	6.00	427.00	-1.60	251.00	-1.50
		408.00	-1.40			297.00	-0.80		-0.70			282.00	-2.10
						356.00	-1.20						
						369.00	-0.60						

LONG BEACH ISLAND N.W.
 DATUM IS HSL MEASUREMENT IS FT

PROFILE P1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/01/28	11:00	6/02/28	11:00	6/03/28	11:00	6/04/28	11:00	6/05/28	11:00	6/06/28	11:00	6/07/28	11:00
50.00	7.30	50.00	7.30	50.00	7.20	50.00	7.20	50.00	7.20	50.00	7.20	50.00	7.20
100.00	5.50	100.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50
126.00	5.50	151.00	5.50	151.00	5.50	151.00	5.50	151.00	5.50	151.00	5.50	151.00	5.50
150.00	6.30	169.00	6.30	201.00	6.30	201.00	6.30	201.00	6.30	201.00	6.30	201.00	6.30
189.00	6.50	226.00	6.50	226.00	6.50	226.00	6.50	226.00	6.50	226.00	6.50	226.00	6.50
227.00	3.50	251.00	3.50	273.00	3.50	273.00	3.50	273.00	3.50	273.00	3.50	273.00	3.50
251.00	2.50	301.00	2.50	302.00	2.50	302.00	2.50	302.00	2.50	302.00	2.50	302.00	2.50
302.00	1.50	351.00	1.50	327.00	1.50	327.00	1.50	327.00	1.50	327.00	1.50	327.00	1.50
352.00	1.50	377.00	1.50	377.00	1.50	377.00	1.50	377.00	1.50	377.00	1.50	377.00	1.50
424.00	1.10	426.00	1.10	426.00	1.10	426.00	1.10	426.00	1.10	426.00	1.10	426.00	1.10

PROFILE P1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/03/28	11:00	6/04/28	11:00	6/05/28	11:00	6/06/28	11:00	6/07/28	11:00	6/08/28	11:00	6/09/28	11:00
226.00	5.50	226.00	5.50	201.00	5.50	201.00	5.50	201.00	5.50	201.00	5.50	201.00	5.50
252.00	4.00	277.00	4.00	252.00	4.00	252.00	4.00	252.00	4.00	252.00	4.00	252.00	4.00
282.00	5.00	327.00	5.00	327.00	5.00	327.00	5.00	327.00	5.00	327.00	5.00	327.00	5.00
337.00	1.90	351.00	1.90	370.00	1.90	370.00	1.90	370.00	1.90	370.00	1.90	370.00	1.90
355.00	1.70	377.00	1.70	377.00	1.70	377.00	1.70	377.00	1.70	377.00	1.70	377.00	1.70
379.00	1.00	402.00	1.00	402.00	1.00	402.00	1.00	402.00	1.00	402.00	1.00	402.00	1.00
401.00	1.00	428.00	1.00	428.00	1.00	428.00	1.00	428.00	1.00	428.00	1.00	428.00	1.00
427.00	1.10	427.00	1.10	427.00	1.10	427.00	1.10	427.00	1.10	427.00	1.10	427.00	1.10

LONG BEACH ISLAND N.J.
 DATUM IS HSL MEASUREMENT IS ET

PROFILE 21

DATE SPVY TIME	DATE 610004 TIME	DATE 610026 TIME	DATE 610110 TIME	DATE 611025 TIME	DATE 611115 TIME	DATE 611227 TIME	DATE 610115 TIME
-1.00	10.10	10.00	10.00	10.00	9.50	8.00	10.10
101.00	8.10	25.00	8.00	76.00	6.00	0.00	10.50
151.00	5.90	51.00	6.20	76.00	6.50	26.00	10.50
201.00	5.20	76.00	6.10	101.00	6.50	36.00	11.00
253.00	5.10	100.00	6.50	153.00	6.90	62.00	11.00
302.00	4.30	126.00	5.30	203.00	7.50	82.00	11.00
348.00	4.00	152.00	5.30	227.00	7.80	101.00	11.00
383.00	1.20	203.00	6.80	252.00	8.00	152.00	11.00
431.00	-1.80	253.00	8.20	276.00	8.00	176.00	11.00
		276.00	8.20	282.00	8.00	202.00	11.00
		328.00	8.40	302.00	8.00	241.00	11.00
						281.00	11.00
						303.00	11.00
						329.00	11.00
						353.00	11.00
						402.00	11.00
						427.00	11.00
						640.00	11.00

PROFILE 21

DATE SPVY TIME	DATE 600212 TIME	DATE 600229 TIME	DATE 600229 TIME	DATE 600229 TIME	DATE 600229 TIME	DATE 600229 TIME	DATE 600229 TIME
86.00	8.50	11.00	11.00	11.00	11.00	11.00	11.00
101.00	8.00	25.00	11.00	25.00	11.00	25.00	11.00
132.00	5.90	51.00	11.20	50.00	11.30	49.00	11.00
151.00	5.20	76.00	12.00	75.00	12.00	74.00	11.00
202.00	4.10	102.00	6.50	102.00	6.30	101.00	11.00
253.00	3.80	128.00	6.80	128.00	6.70	127.00	11.00
303.00	3.40	171.00	6.90	171.00	6.80	170.00	11.00
322.00	2.10	202.00	6.80	202.00	6.80	201.00	11.00
		252.00	6.80	252.00	6.80	251.00	11.00
		276.00	6.80	276.00	6.80	275.00	11.00
		316.00	6.80	316.00	6.80	315.00	11.00
						353.00	11.00

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 21

DATE 650119	DATE 650427	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660321	DATE 660922
SVY 43	SVY 48	SVY 45	SVY 48	SVY 47	SVY 4A	SVY 4B	SVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
80.00	6.00	11.70	0.00	10.90	0.00	0.00	12.10
101.00	7.70	46.00	11.50	38.00	11.40	31.00	30.00
127.00	5.70	51.00	10.90	60.00	7.80	101.00	67.00
151.00	0.00	101.00	7.30	102.00	7.20	141.00	62.00
172.00	2.80	127.00	5.90	151.00	7.30	176.00	104.00
229.00	0.00	151.00	2.50	177.00	5.00	202.00	124.00
252.00	-0.20	202.00	-1.70	176.00	6.00	202.00	174.00
279.00	6.00	196.00	2.80	227.00	1.90	226.00	201.00
302.00	1.00	241.00	1.00	227.00	1.20	226.00	212.00
350.00	-1.00	278.00	0.00	201.00	1.90	211.00	276.00
378.00	-0.00	303.00	0.00	403.00	-3.00	377.00	377.00
402.00	-0.80	328.00	-1.00	403.00	-3.10	377.00	377.00
429.00	-1.00	328.00	-1.00	403.00	-3.10	377.00	377.00
454.00	-1.00	328.00	-1.00	403.00	-3.10	377.00	377.00
480.00	-2.10	328.00	-1.00	403.00	-3.10	377.00	377.00

PROFILE 21

DATE 670116	DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 681000
SVY 51	SVY 53	SVY 50	SVY 55	SVY 56	SVY 57	SVY 58	SVY 59
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
1.00	0.00	11.90	0.00	10.30	0.00	0.00	0.00
26.00	11.10	36.00	10.50	38.00	9.80	9.80	20.00
46.00	10.70	9.40	100.00	7.60	8.20	101.00	90.00
53.00	6.90	100.00	0.10	100.00	0.70	151.00	90.00
101.00	1.00	151.00	4.00	176.00	5.30	150.00	100.00
126.00	1.60	202.00	0.00	100.00	3.70	201.00	100.00
151.00	0.00	224.00	0.00	124.00	1.00	251.00	100.00
202.00	-0.10	224.00	-1.70	189.00	0.00	300.00	100.00
226.00	-0.00	302.00	-0.00	189.00	-0.00	325.00	100.00
277.00	-1.90	327.00	-1.40	227.00	0.20	227.00	100.00
302.00	-1.70	352.00	0.20	227.00	0.20	227.00	100.00
328.00	-2.50	377.00	-2.50	377.00	-2.50	377.00	100.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 21

DATE 681023	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690304	DATE 690524	DATE 691020
SVY 60	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66	SVY 67
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0+00	0+00	0+50	0+00	0+00	0+00	0+00	0+00
10+00	0+00	7+80	7+70	7+80	8+30	8+80	8+00
25+00	0+00	28+00	5+00	25+00	7+20	9+10	9+00
40+00	0+00	7+00	7+00	7+20	5+00	5+00	8+50
55+00	0+00	7+00	7+00	7+60	6+00	7+10	8+50
70+00	0+00	10+00	7+50	7+60	5+00	7+10	8+50
85+00	0+00	10+00	7+50	100+00	4+00	101+00	100+00
100+00	0+00	125+00	7+10	125+00	2+60	150+00	125+00
115+00	0+00	150+00	6+90	150+00	1+70	200+00	150+00
130+00	0+20	200+00	137+00	137+00	0+80	250+00	200+00
145+00	0+00	150+00	150+00	150+00	0+60	300+00	150+00
160+00	0+00	175+00	175+00	3+60	250+00	0+30	150+00
175+00	0+80	200+00	200+00	0+40	300+00	-1+50	175+00
		225+00	225+00	0+40	300+00	-2+20	200+00
		250+00	250+00	-1+50	350+00	-0+90	250+00
				-0+40		550+00	275+00
							300+00
							-1+50

PROFILE 21

DATE 691020	DATE 691119	DATE 691218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 701028
SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74	SVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25+00	0+60	0+00	0+00	0+00	25+00	50+00	0+00
50+00	0+60	0+00	0+00	0+00	40+00	45+00	0+00
75+00	0+10	0+10	25+00	25+00	8+50	6+50	50+00
100+00	0+10	0+10	50+00	50+00	0+00	0+00	150+00
125+00	0+10	0+10	75+00	75+00	6+00	6+00	150+00
150+00	0+10	0+10	100+00	100+00	0+00	0+00	200+00
175+00	0+10	0+10	125+00	125+00	1+70	150+00	200+00
200+00	0+10	0+10	150+00	150+00	0+00	200+00	300+00
225+00	0+10	0+10	175+00	175+00	-0+60		350+00
250+00	0+10	0+10	200+00	200+00	-1+10		400+00
275+00	0+10	0+10	225+00	225+00	-2+50		
300+00	0+10	0+10	250+00	250+00	-2+50		
325+00	0+10	0+10	275+00	275+00	-2+00		

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 22

DATE 720224	DATE 721018	DATE 721204	DATE 730102	DATE 730212	DATE 730314	DATE 730524	DATE 730602
SWY 93	SWY 98	SWY 95	SWY 96	SWY 97	SWY 98	SWY 99	SWY 99
TIME 1300	TIME 1000	TIME 1100	TIME 1000	TIME 1100	TIME 0900	TIME 1200	TIME 1300
0.00 13.70	0.00 15.70	0.00 13.60	0.00 13.30	0.00 13.70	0.00 13.70	0.00 13.90	0.00 13.60
19.40 50.00	18.90 50.00	13.00 40.00	17.20 40.00	36.00 20.00	36.00 20.00	12.00 40.00	58.10 20.50
14.10 68.00	17.50 68.00	19.80 68.00	19.80 68.00	54.00 19.10	17.40 65.00	44.00 19.90	50.00 18.10
15.70 100.00	14.20 100.00	16.90 84.00	16.70 80.00	15.70 86.00	14.50 84.00	41.00 15.80	80.00 14.70
10.60 156.00	11.70 156.00	17.10 91.00	14.10 91.00	100.00 14.00	100.00 14.00	80.00 14.00	100.00 14.00
10.60 106.00	11.00 110.00	14.60 100.00	14.00 100.00	125.00 12.00	107.00 14.70	100.00 14.50	100.00 14.70
8.40 180.00	10.10 180.00	13.90 150.00	10.30 150.00	150.00 4.70	102.00 10.70	110.00 13.80	113.00 11.00
4.10 200.00	8.30 200.00	10.90 200.00	7.40 200.00	175.00 6.80	100.00 9.50	112.00 11.00	113.00 10.60
4.30 225.00	5.30 225.00	9.70 225.00	6.60 220.00	235.00 0.00	150.00 7.50	150.00 7.50	150.00 7.50
4.40 250.00	1.80 250.00	7.70 250.00	5.50 250.00	235.00 0.00	200.00 2.00	200.00 2.10	200.00 3.50
2.70 292.00	1.20 292.00	5.70 292.00	2.00 292.00	250.00 -1.10	250.00 -3.50	225.00 -1.00	207.00 -1.50
2.70 300.00	0.00 300.00	0.00 300.00	0.00 300.00	0.00 300.00	0.00 300.00	0.00 300.00	0.00 300.00
0.00 320.00	0.00 320.00	0.00 320.00	-2.70 320.00	-1.10 320.00	-3.50 320.00	-1.00 320.00	-1.50 320.00

PROFILE 22

DATE 730217	DATE 730411
SWY 101	SWY 103
TIME 1100	TIME 1000
0.00 13.50	0.00 13.10
18.00 18.70	32.00 19.00
10.00 10.00	84.00 18.20
104.00 13.00	100.00 14.30
113.00 11.90	110.00 13.00
150.00 9.90	119.00 11.00
189.00 8.20	156.00 9.60
200.00 5.40	191.00 9.60
256.00 -1.10	200.00 8.20
300.00 -2.40	230.00 7.70
	250.00 4.90
	300.00 -1.20
	306.00 -2.60

LONG BEACH ISLAND N. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 23

DATE SPVY TIME	720929	DATE SPVY TIME	721014	DATE SPVY TIME	721204	DATE SPVY TIME	730102	DATE SPVY TIME	730212	DATE SPVY TIME	730314	DATE SPVY TIME	730524	DATE SPVY TIME	730629
0:00	14:50	0:00	13:90	0:00	10:00	0:00	13:90	0:00	10:10	0:00	14:10	0:00	14:00	0:00	13:90
20:00	14:00	20:00	16:40	21:00	16:40	32:00	17:30	15:00	16:20	18:00	16:20	19:00	16:10	17:00	16:00
32:00	17:40	32:00	17:40	32:00	17:30	55:00	18:30	52:00	18:60	52:00	17:40	52:00	18:20	51:00	17:30
53:00	18:40	53:00	18:40	50:00	18:40	66:00	19:20	65:00	19:10	52:00	18:90	64:00	17:90	52:00	18:50
65:00	17:10	67:00	17:20	67:00	17:30	85:00	19:50	78:00	19:50	65:00	17:00	76:00	21:00	60:00	18:90
82:00	19:30	78:00	19:20	77:00	19:40	100:00	18:00	100:00	18:20	78:00	18:70	100:00	18:00	70:00	18:50
100:00	18:10	100:00	18:20	100:00	18:10	150:00	12:50	112:00	17:60	100:00	18:20	112:00	18:30	100:00	17:10
150:00	10:50	150:00	12:40	107:00	17:00	175:00	9:10	133:00	15:50	116:00	17:10	136:00	14:00	112:00	17:50
275:00	9:00	300:00	14:30	150:00	17:20	200:00	8:50	150:00	13:10	150:00	12:50	150:00	10:50	140:00	14:00
292:00	8:70	215:00	9:60	180:00	11:20	250:00	8:70	175:00	9:40	161:00	10:40	200:00	9:40	160:00	11:20
295:00	5:50	215:00	7:60	200:00	8:00	275:00	-2:30	200:00	7:60	200:00	7:00	250:00	-1:10	200:00	8:10
250:00	3:00	250:00	5:50	250:00	3:00	300:00	3:10	250:00	5:00	250:00	3:00	250:00	-1:00	250:00	4:10
300:00	-6:00	300:00	2:10	300:00	3:10	325:00	-1:70	275:00	2:10	250:00	-2:00	250:00	-1:00	250:00	-1:00
315:00	-2:10	300:00	-2:50	300:00	-1:70	325:00	-1:70	275:00	2:10	250:00	-2:00	250:00	-1:00	250:00	-1:00

PROFILE 23

DATE SPVY TIME	740917	DATE SPVY TIME	740917	DATE SPVY TIME	740917
0:00	19:00	0:00	19:00	0:00	19:00
12:00	19:60	32:00	17:50	12:00	19:60
15:00	16:30	54:00	19:00	15:00	16:30
19:00	16:30	65:00	17:00	19:00	16:30
32:00	17:30	77:00	19:60	32:00	17:30
53:00	18:00	100:00	18:70	53:00	18:00
65:00	17:10	114:00	18:30	65:00	17:10
79:00	19:50	102:00	19:00	79:00	19:50
100:00	14:00	150:00	9:30	100:00	14:00
133:00	14:50	200:00	8:20	133:00	14:50
163:00	10:20	203:00	7:20	163:00	10:20
200:00	5:00	230:00	6:40	200:00	5:00
240:00	0:00	300:00	2:50	240:00	0:00
275:00	-3:10	305:00	-1:10	275:00	-3:10
		310:00	-1:50		

LONG BEACH ISLAND N-J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 24

DATE SRVY TIME	720829 93 1300	DATE SRVY TIME	721016 90 1100	DATE SRVY TIME	721204 95 1100	DATE SRVY TIME	730102 9A 1100	DATE SRVY TIME	730212 97 1100	DATE SRVY TIME	730314 9A 900	DATE SRVY TIME	730324 99 1100	DATE SRVY TIME	730402 100 1300
0.00	12.00	0.00	12.50	0.00	12.50	0.00	12.50	0.00	12.50	0.00	12.50	0.00	12.00	0.00	12.00
25.00	19.00	25.00	16.20	30.00	17.20	39.00	17.40	40.00	15.10	48.00	19.10	30.00	19.20	20.00	19.40
50.00	15.70	50.00	15.70	87.00	15.50	49.00	15.50	55.00	16.10	58.00	15.20	00.00	15.00	04.00	14.90
59.00	16.00	70.00	16.00	57.00	16.20	87.00	16.80	60.00	16.00	68.00	15.90	70.00	15.90	61.00	16.00
100.00	15.70	84.00	16.60	76.00	16.70	100.00	15.40	73.00	16.30	75.00	16.70	80.00	17.00	88.00	17.20
125.00	15.20	100.00	16.10	100.00	16.00	140.00	13.40	85.00	17.00	92.00	16.90	100.00	17.10	100.00	16.50
170.00	10.10	125.00	14.80	124.00	14.00	150.00	12.40	100.00	15.00	100.00	16.10	150.00	12.50	100.00	15.50
182.00	10.30	165.00	10.80	150.00	12.40	200.00	9.60	141.00	11.20	127.00	15.00	200.00	8.00	150.00	12.50
200.00	8.30	200.00	8.30	181.00	10.60	250.00	3.20	200.00	7.20	200.00	12.40	250.00	3.10	170.00	10.50
209.00	8.20	227.00	8.20	200.00	9.20	275.00	0.20	275.00	4.10	280.00	8.40	297.00	-1.70	200.00	6.70
225.00	9.80	275.00	8.90	214.00	7.00	300.00	-3.20	275.00	4.50	280.00	8.90	300.00	-1.70	200.00	6.70
250.00	1.50	300.00	1.10	250.00	3.00	300.00	-1.10	300.00	4.10	280.00	8.90	300.00	-1.70	200.00	6.70
300.00	-2.30	325.00	-2.50	300.00	1.10	300.00	-1.10	300.00	4.10	280.00	8.90	300.00	-1.70	200.00	6.70
		375.00	-2.50												
		400.00	-1.50												

PROFILE 24

DATE SRVY TIME	730417 101 1100	DATE SRVY TIME	730611 103 1100
0.00	12.50	0.00	12.50
27.00	19.00	23.00	18.80
47.00	15.10	35.00	14.00
73.00	16.50	50.00	15.00
100.00	16.30	91.00	15.90
122.00	11.00	106.00	16.00
165.00	9.60	152.00	15.70
200.00	5.30	176.00	9.20
225.00	-2.00	200.00	6.80
250.00	-6.70	200.00	6.70
275.00	4.50	225.00	4.50
300.00	-1.10	250.00	0.90
	-2.40	300.00	-2.40

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 25

DATE SVY TIME	720829	DATE SVY TIME	721014	DATE SVY TIME	721208	DATE SVY TIME	721610	DATE SVY TIME	740212	DATE SVY TIME	730318	DATE SVY TIME	710328	DATE SVY TIME	710402
0+00	15+50	0+00	15+20	0+00	15+10	0+00	15+00	0+00	15+00	0+00	14+90	0+00	14+90	0+00	14+80
15+00	14+70	12+00	14+70	11+00	14+60	24+00	15+60	22+00	16+00	20+00	15+60	17+00	14+70	10+00	14+10
23+00	15+20	25+00	16+20	25+00	16+20	48+00	15+90	34+00	16+50	33+00	16+60	33+00	16+20	33+00	15+60
42+00	15+60	34+00	16+50	34+00	16+50	62+00	13+80	49+00	15+90	51+00	15+90	50+00	15+50	53+00	14+20
56+00	14+60	44+00	15+80	44+00	16+00	100+00	11+60	66+00	13+10	64+00	13+50	100+00	11+10	54+00	15+10
100+00	10+20	62+00	13+80	60+00	14+10	150+00	7+70	80+00	13+00	64+00	12+90	150+00	8+30	92+00	11+60
150+00	9+60	92+00	11+60	100+00	10+90	200+00	6+90	100+00	11+50	64+00	11+00	175+00	6+20	100+00	11+10
184+00	8+50	100+00	10+90	152+00	9+50	225+00	4+70	150+00	6+50	121+00	8+80	200+00	2+80	100+00	9+70
200+00	8+90	124+00	10+80	186+00	8+60	250+00	3+80	200+00	1+00	150+00	6+70	225+00	1+50	103+00	8+20
250+00	8+60	143+00	10+60	216+00	7+50	275+00	2+80	200+00	0+10	240+00	5+30	247+00	1+10	120+00	7+60
300+00	2+10	140+00	10+60	240+00	2+10	290+00	1+80	275+00	0+10	240+00	5+30	275+00	0+10	250+00	6+20
		200+00	9+80	260+00	1+80					275+00	5+70			270+00	6+20
		225+00	1+30											272+00	5+70
		241+00	1+70												5+50

PROFILE 25

DATE SVY TIME	730417	DATE SVY TIME	730411
SVY 101		SVY 103	
TIME 1100		TIME 1100	
0+00	14+00	0+00	14+10
9+00	14+10	12+00	14+10
21+00	15+70	24+00	15+80
30+00	16+00	30+00	16+30
56+00	15+00	50+00	15+80
97+00	11+20	90+00	12+70
145+00	10+00	100+00	11+00
150+00	9+10	150+00	10+00
185+00	6+70	169+00	9+30
185+00	5+80	181+00	7+50
200+00	3+60	200+00	7+00
225+00	2+00	224+00	6+60
250+00	2+00	240+00	4+30
275+00	2+60	300+00	2+10
		312+00	3+50

LONG BEACH ISLAND, N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 26

DATE 720029	DATE 721016	DATE 721204	DATE 730102	DATE 730212	DATE 730310	DATE 730329	DATE 730602
SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97	SRVY 98	SRVY 99	SRVY 100
TIME 1300	TIME 1100	TIME 1100	TIME 1100	TIME 1200	TIME 400	TIME 1700	TIME 1300
0.00	0.00	17.10	0.00	17.10	0.00	17.00	0.00
18.60	27.00	18.60	24.00	15.50	32.00	16.00	19.00
18.60	32.00	18.60	24.00	16.50	51.00	18.30	19.00
52.00	18.60	18.60	24.00	16.50	94.00	18.00	42.00
88.00	60.00	18.60	100.00	18.70	94.00	18.00	18.00
100.00	73.00	17.50	52.00	18.00	132.00	10.50	45.00
117.00	81.00	17.00	61.00	13.00	132.00	10.00	18.70
134.00	81.00	18.10	81.00	9.00	150.00	9.20	116.00
150.00	92.00	18.00	150.00	8.00	183.00	10.00	110.00
170.00	106.00	18.60	172.00	110.00	9.00	131.00	114.00
183.00	107.00	18.00	200.00	6.20	200.00	6.50	150.00
200.00	110.00	19.00	225.00	3.70	250.00	8.00	191.00
250.00	116.00	11.60	250.00	1.10	275.00	6.70	200.00
275.00	150.00	10.50	280.00	-2.60	275.00	-3.50	225.00
	181.00	10.20					250.00
	191.00	10.40					275.00
	225.00	4.00					275.00
	250.00	0.40					
	285.00	-1.20					

PROFILE 26

DATE 730017	DATE 730011
SRVY 101	SRVY 103
TIME 1100	TIME 1100
0.00	0.00
16.00	0.00
30.00	15.00
51.00	16.50
80.00	19.10
100.00	20.10
125.00	22.00
150.00	23.00
183.00	24.00
200.00	26.00
227.00	27.00
250.00	28.00
300.00	29.00
350.00	30.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 30

DATE 720229	DATE 721014	DATE 721204	DATE 730102	DATE 730213	DATE 730314	DATE 730324	DATE 730402
SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97	SRVY 98	SRVY 99	SRVY 100
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1100	TIME 900	TIME 1700	TIME 1230
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14.70	15.00	14.80	15.90	15.70	15.80	15.80	15.90
25.00	18.00	18.70	18.90	18.40	18.90	18.00	22.00
32.00	16.00	18.70	17.00	17.60	16.00	17.00	19.00
40.00	19.00	19.00	16.00	19.60	16.00	16.00	44.00
53.00	17.00	18.00	19.80	18.00	15.40	16.00	48.00
60.00	15.40	13.60	58.00	13.30	43.00	16.00	78.00
65.00	17.00	10.90	65.00	10.00	78.00	12.00	100.00
85.00	13.00	9.40	11.90	10.00	10.00	77.00	100.00
100.00	9.50	100.00	41.00	150.00	10.50	100.00	150.00
105.00	9.50	150.00	11.30	200.00	8.20	150.00	165.00
110.00	8.00	167.00	100.00	250.00	8.20	200.00	210.00
121.00	8.10	200.00	8.00	170.00	2.20	200.00	225.00
125.00	5.50	200.00	5.90	200.00	8.50	225.00	4.60
150.00	5.50	250.00	200.00	2.80	250.00	250.00	80
200.00	2.50	250.00	240.00	294.00	275.00	250.00	271.00
200.00	-1.40	-1.10	-4.20	-4.20	-2.10	280.00	-2.80

PROFILE 30

DATE 730617	DATE 730611
SRVY 101	SRVY 103
TIME 1200	TIME 1200
0.00	0.00
15.00	0.00
22.00	19.00
42.00	19.80
59.00	17.00
77.00	17.20
100.00	10.50
150.00	9.80
177.00	10.20
200.00	5.20
200.00	2.00
200.00	2.00
200.00	-2.10

LONG BEACH ISLAND S.J.
 DATUM IS OSL MEASUREMENT T.S. ET

PROFILE 12

DATE 620024	DATE 620024	DATE 621011	DATE 621023	DATE 621020	DATE 621108	DATE 621210	DATE 621227
SWY 1	SWY 2	SWY 3	SWY 4	SWY 5	SWY 7	SWY 8	SWY 15
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
52.00	10.60	105.00	12.30	195.00	12.50	145.00	12.00
58.00	11.30	155.00	9.80	195.00	10.80	125.00	12.00
72.00	13.83	158.00	6.40	170.00	8.10	135.00	12.00
80.00	13.80	185.00	7.70	177.00	7.00	135.00	12.00
80.00	13.80	194.00	4.80	198.00	5.90	155.00	7.80
92.00	10.90	218.00	1.80	220.00	4.40	177.00	7.00
115.00	10.00	245.00	0.90	245.00	0.50	177.00	6.80
165.00	12.00				1.80	198.00	5.30
196.00	9.70				2.00	205.00	5.00
218.00	2.80				2.05.00	212.00	4.10
295.00	0.20						
285.00	-1.00						
285.00	-1.00						
300.00	-2.10						

PROFILE 12

DATE 640014	DATE 640212	DATE 640310	DATE 640607	DATE 640625	DATE 640628	DATE 640629	DATE 640629
SWY 34	SWY 35	SWY 36	SWY 37	SWY 38	SWY 39	SWY 40	SWY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
52.00	12.20	123.00	12.30	52.00	12.30	25.00	11.00
105.00	14.00	167.20	16.10	75.00	16.20	50.00	12.50
131.00	14.00	178.00	10.00	100.00	16.20	75.00	14.50
150.00	15.20	180.00	13.60	119.00	14.00	100.00	16.30
175.00	7.50	195.00	9.50	150.00	9.40	134.00	9.50
200.00	6.10	200.00	8.00	175.00	8.70	150.00	8.60
225.00	4.80	215.00	2.00	200.00	4.80	175.00	4.80
250.00	3.70	200.00	6.80	225.00	5.50	200.00	7.50
300.00	0.70	201.00	-0.50	250.00	-0.50	225.00	7.00
		205.00	1.80	250.00	1.80	250.00	5.10
		205.00	-0.60	300.00	-0.60	300.00	5.10
		215.00	-1.70				
		300.00	-3.10				
		325.00	-3.50				

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 32

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
85+00	18+50	145+00	105+00	18+50	135+00	10+80	72+00	18+50	100+00	18+50	72+00	11+50	15+50	72+00
97+00	18+50	150+00	131+00	10+80	150+00	9+30	105+00	18+50	178+00	17+20	91+00	17+20	17+20	91+00
115+00	18+50	200+00	150+00	8+50	200+00	7+40	200+00	7+40	150+00	9+20	100+00	16+10	100+00	16+10
135+00	18+50	250+00	175+00	8+20	250+00	6+90	225+00	4+60	250+00	4+60	120+00	15+00	120+00	15+00
175+00	18+50	275+00	225+00	4+60	275+00	3+10	250+00	2+50	275+00	3+90	130+00	11+00	130+00	11+00
200+00	7+90	300+00	2+20	300+00	4+0	275+00	3+10	300+00	1+40	300+00	1+10	150+00	8+80	150+00
225+00	7+20	425+00	275+00	1+20	425+00	125+00	40	300+00	-2+90	325+00	-1+10	200+00	7+80	200+00
250+00	5+60	425+00	300+00	-4+40	325+00	325+00	-3+50	350+00	-2+90	350+00	-2+90	225+00	5+60	225+00
275+00	4+00	325+00	325+00	-1+60	400+00	400+00	-4+00	400+00	-1+70	400+00	-1+70	275+00	4+00	275+00
300+00	3+10	400+00	400+00	-2+40	400+00	400+00	-1+80	425+00	-1+80	425+00	-1+80	300+00	3+10	300+00

PROFILE 33

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
150+00	9+70	150+00	9+60	150+00	10+80	135+00	10+80	10+60	130+00	10+60	130+00	11+50	130+00	11+50
190+00	7+90	182+00	9+00	175+00	8+40	150+00	9+70	150+00	9+60	150+00	9+60	150+00	9+70	150+00
201+00	7+80	182+00	7+90	200+00	8+40	175+00	8+40	7+50	200+00	7+70	200+00	7+70	200+00	7+70
228+00	8+20	200+00	8+60	200+00	8+70	250+00	5+60	250+00	7+60	250+00	7+60	250+00	7+80	250+00
251+00	8+00	222+00	8+20	300+00	4+90	210+00	4+90	272+00	5+10	300+00	4+80	300+00	8+00	300+00
303+00	2+70	250+00	4+10	230+00	6+60	300+00	5+90	330+00	3+30	330+00	3+30	325+00	3+70	325+00
303+00	4+90	260+00	6+20	350+00	3+40	250+00	5+80	300+00	2+90	400+00	-1+70	350+00	1+20	350+00
320+00	4+20	200+00	6+10	275+00	3+40	275+00	3+40	335+00	2+90	400+00	-1+70	400+00	-1+70	400+00
411+00	-2+70	325+00	1+60	300+00	3+60	300+00	3+60	300+00	3+60	300+00	3+60	300+00	3+60	300+00
436+00	-1+60	400+00	-3+20	350+00	8+00	400+00	-1+80	425+00	-1+80	425+00	-1+80	425+00	-1+80	425+00
400+00	-1+60	400+00	-3+20	400+00	-4+00	400+00	-4+00	400+00	-4+00	400+00	-4+00	400+00	-4+00	400+00

LING HATCH ISLAND, N.J.
 DATUM IS MSL MEASUREMENT IS F1

PROFILE 33

DATE 710428	DATE 710112	DATE 710120	DATE 710127	DATE 710129	DATE 710204	DATE 710208	DATE 710304	DATE 710404
SRVY 75	SRVY 7A	SRVY 77	SRVY 77	SRVY 77A	SRVY 77A	SRVY 79	SRVY 81	SRVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
37.00	13.20	32.00	12.00	150.00	9.80	150.00	10.00	150.00
40.00	15.00	55.00	15.50	200.00	8.50	200.00	10.00	150.00
100.00	18.00	42.00	18.40	250.00	8.20	250.00	8.00	157.00
100.00	18.50	100.00	18.50	300.00	8.10	300.00	8.00	250.00
150.00	9.00	100.00	15.80	350.00	1.80	350.00	3.00	250.00
150.00	9.00	150.00	9.70	400.00	1.80	400.00	3.00	250.00
200.00	7.00	200.00	7.50	450.00	3.00	450.00	4.00	350.00
250.00	7.50	250.00	7.50	500.00	3.00	500.00	4.00	400.00
300.00	7.50	300.00	7.50	550.00	3.10	550.00	4.00	450.00
350.00	1.50	300.00	8.40	600.00	3.10	600.00	4.00	500.00
367.00		325.00	4.10					
400.00	-2.30	350.00	3.30					
450.00	-3.50	350.00	1.70					
500.00	-4.00	400.00	-1.40					
550.00	-3.10	450.00	-3.40					
600.00	-5.50							

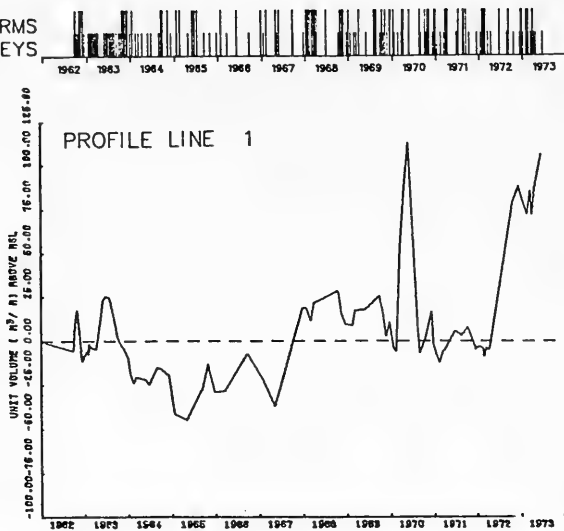
PROFILE 35

DATE 710620	DATE 710710	DATE 710817	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 721223
SRVY 83	SRVY 86	SRVY 85	SRVY 86A	SRVY 87	SRVY 88A	SRVY 89	SRVY 90
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
70.00	17.00	42.00	13.70	150.00	11.80	150.00	12.20
88.00	17.00	81.00	17.10	200.00	8.70	200.00	8.70
100.00	16.20	100.00	16.80	250.00	7.30	250.00	7.40
130.00	13.70	125.00	10.00	300.00	5.70	300.00	5.30
150.00	11.00	141.00	12.10	350.00	2.20	350.00	2.20
150.00	11.00	160.00	8.90	400.00	2.00	400.00	2.00
200.00	17.00	200.00	15.70	450.00	1.80	450.00	1.80
250.00	7.20	200.00	8.30	500.00	1.80	500.00	1.80
262.00	7.60	300.00	7.90	550.00	1.90	550.00	1.90
300.00	4.80	300.00	3.50	600.00	1.80	600.00	1.80
325.00	2.00	350.00	2.80	650.00	1.70	650.00	1.70
350.00	-0.00	400.00	-1.00	700.00	1.60	700.00	1.60
400.00	-4.90	400.00	-3.00	750.00	1.50	750.00	1.50
450.00	-7.10	400.00	-3.60	800.00	1.40	800.00	1.40

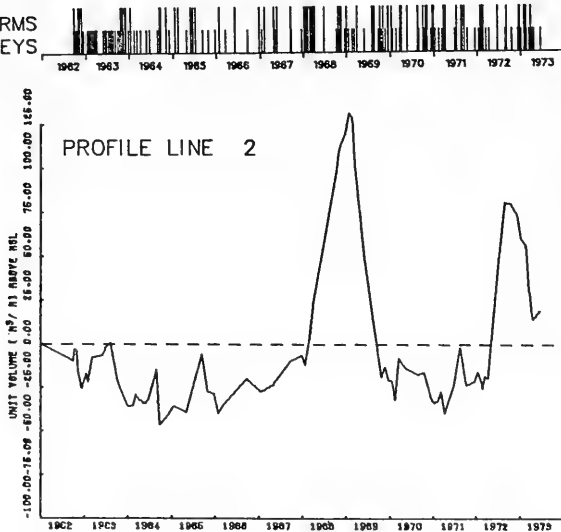
APPENDIX D

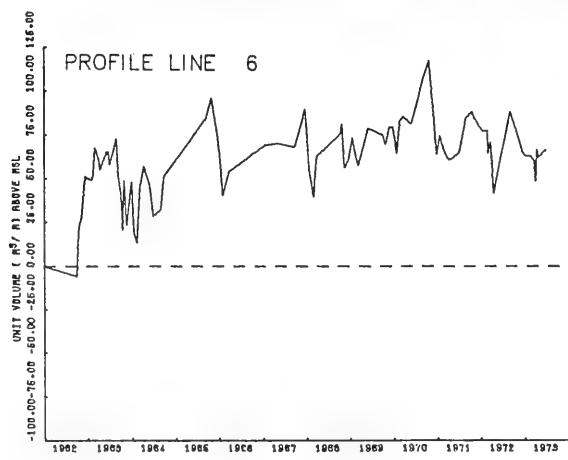
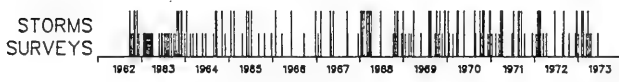
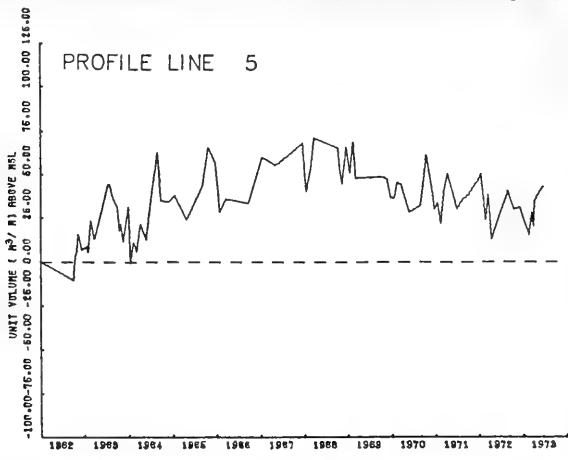
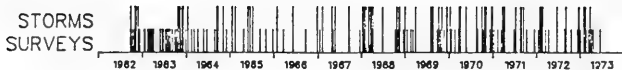
ABOVE MSL UNIT VOLUME CHANGE
(referenced to initial survey)

STORMS SURVEYS

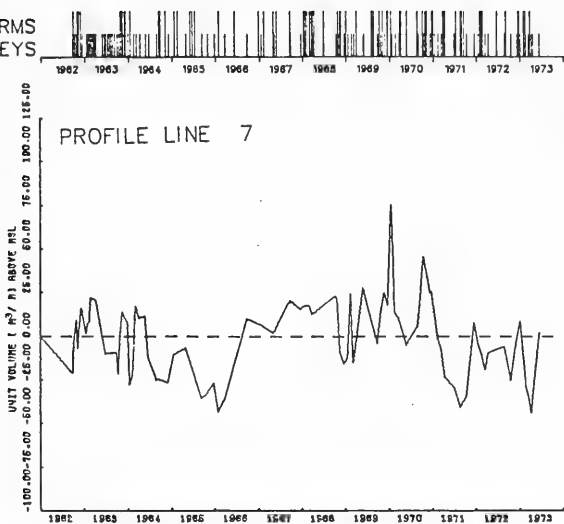


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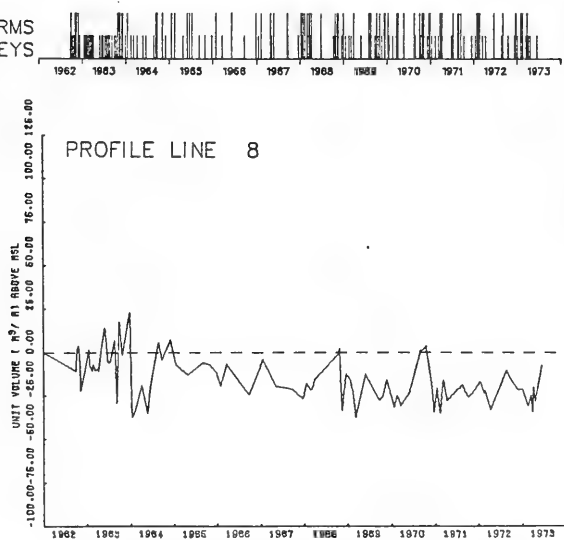




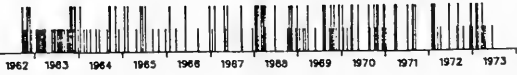
STORMS
SURVEYS



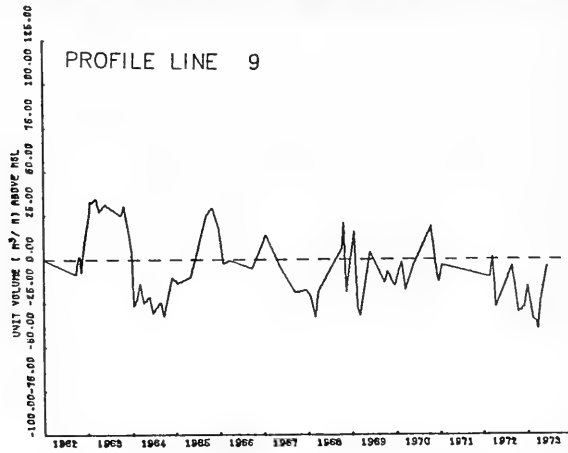
STORMS
SURVEYS



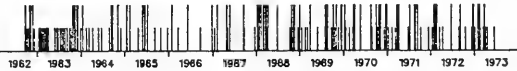
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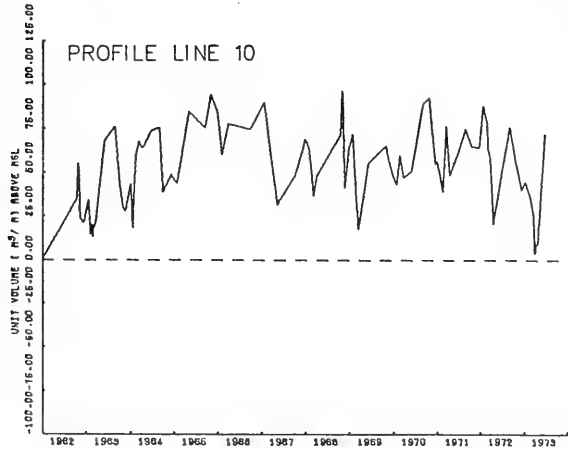
PROFILE LINE 9



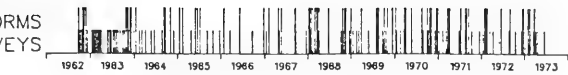
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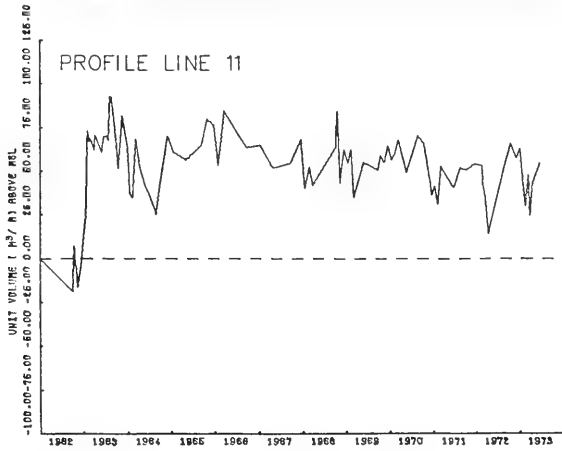
PROFILE LINE 10



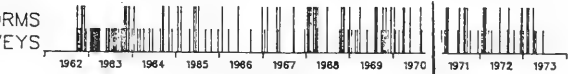
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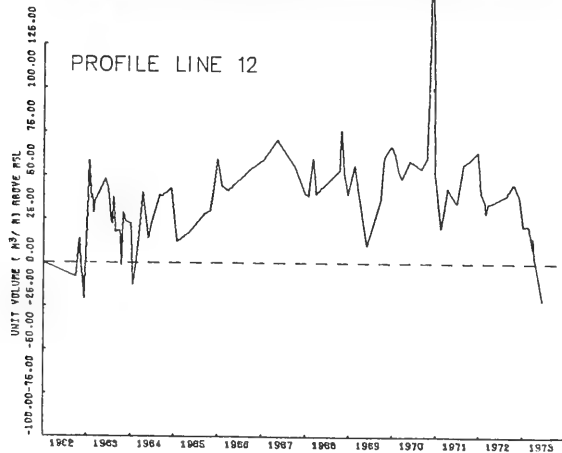
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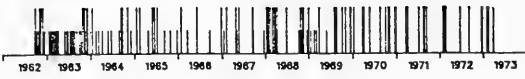
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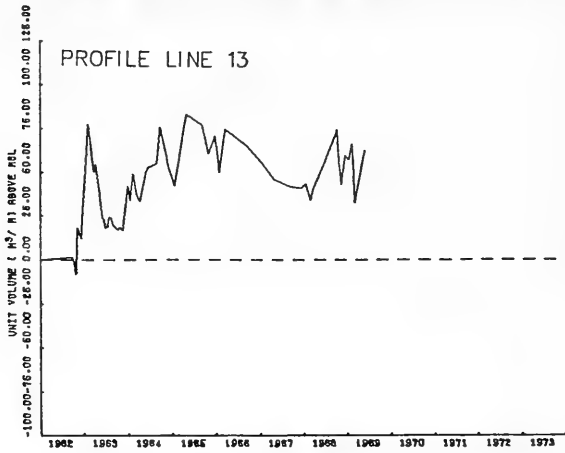
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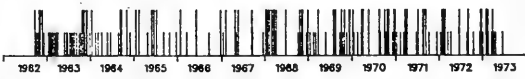
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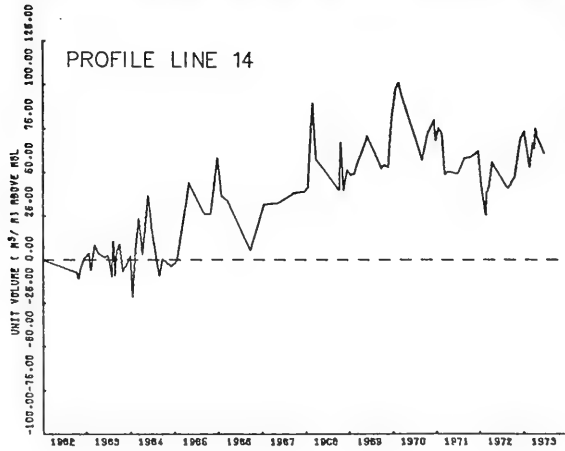
PROFILE LINE 13



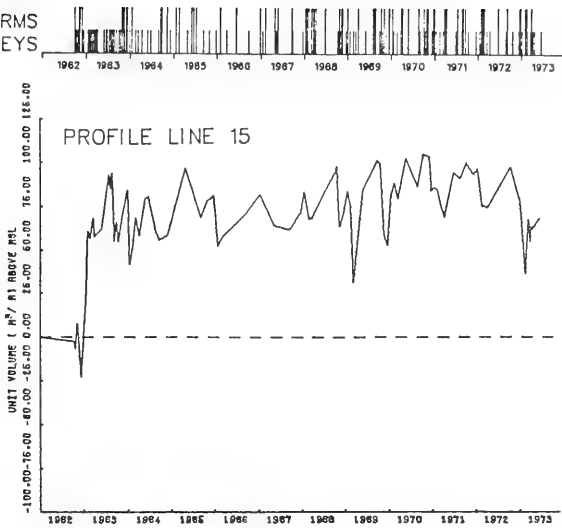
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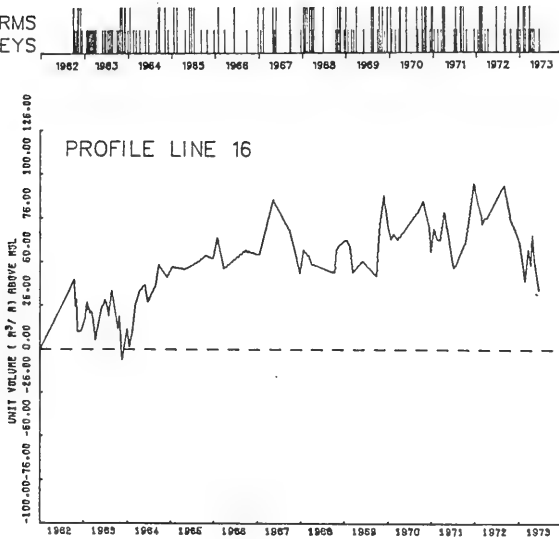
PROFILE LINE 14



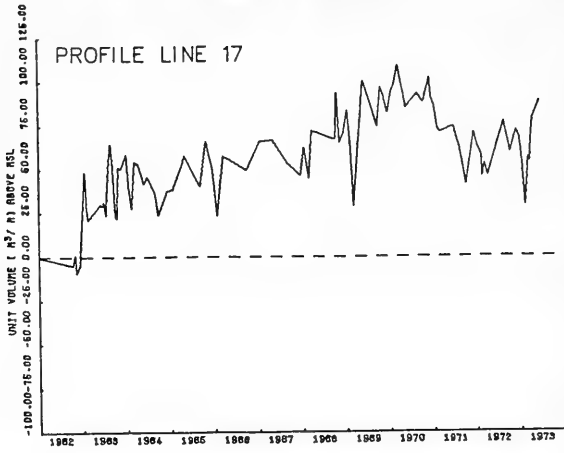
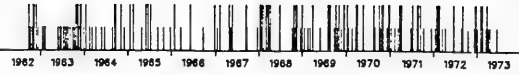
STORMS
SURVEYS



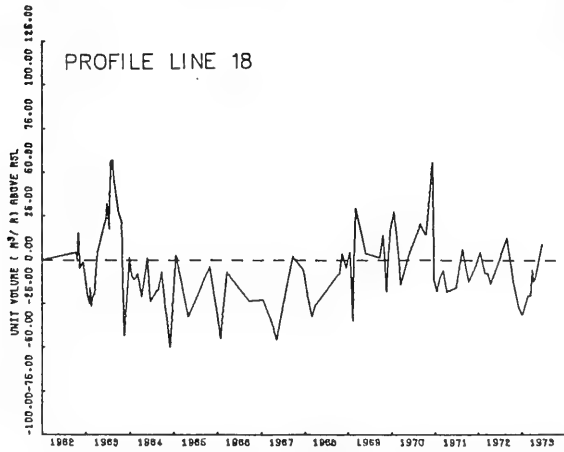
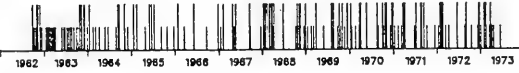
STORMS
SURVEYS



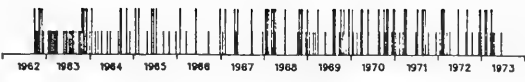
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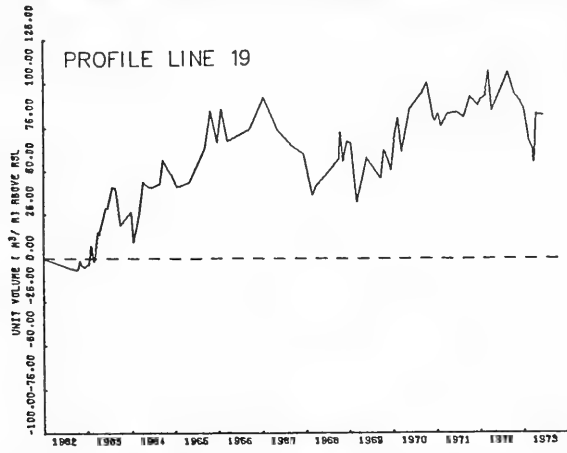
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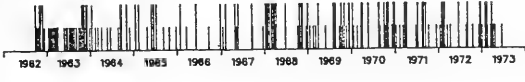
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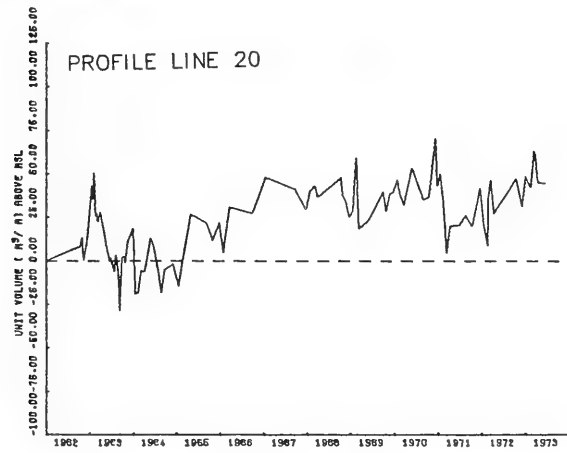
PROFILE LINE 19

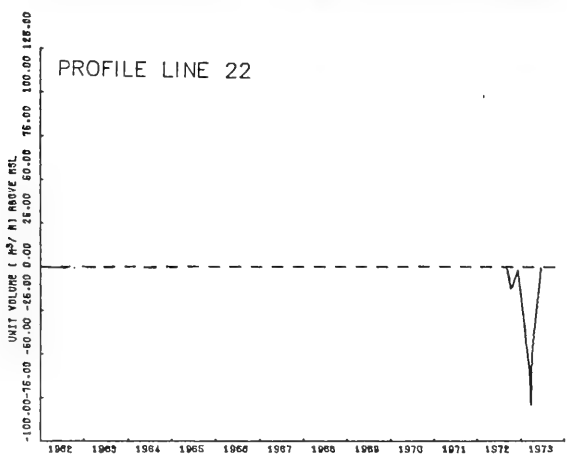
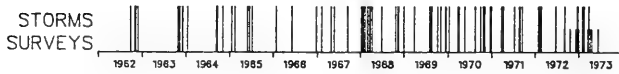
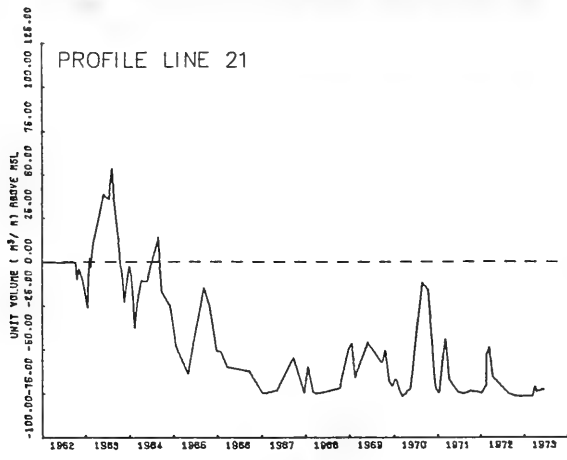
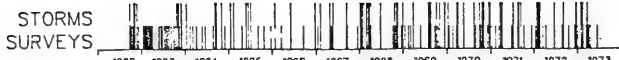


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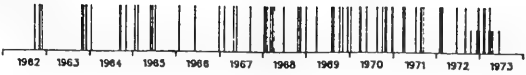


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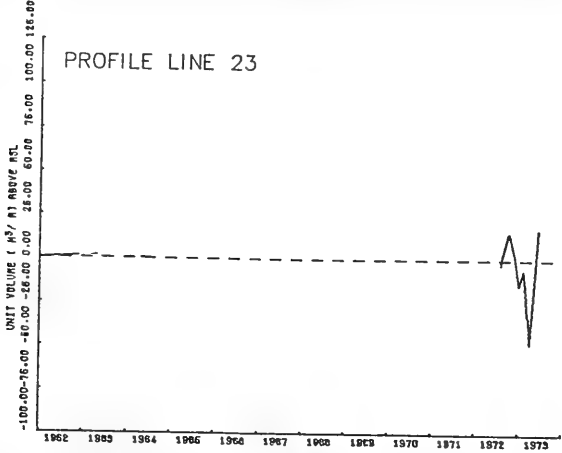




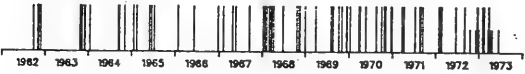
STORMS
SURVEYS



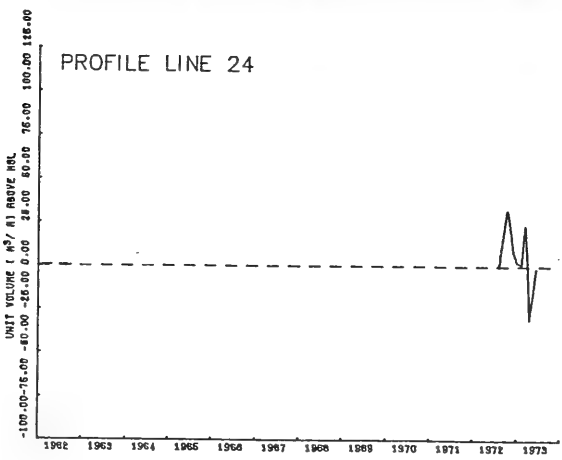
PROFILE LINE 23



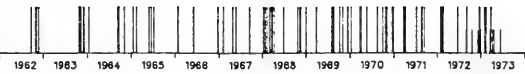
STORMS
SURVEYS



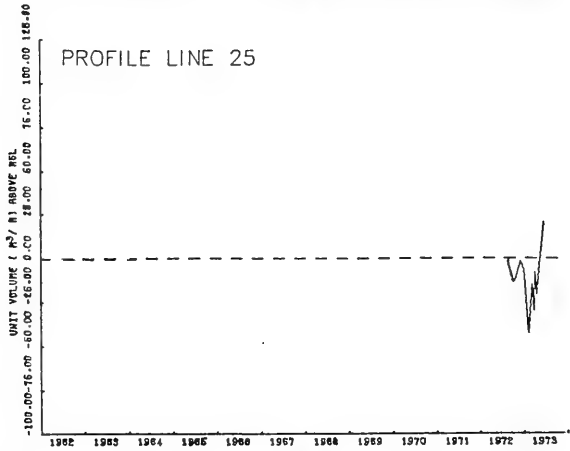
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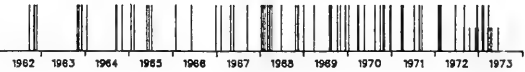
STORMS
SURVEYS



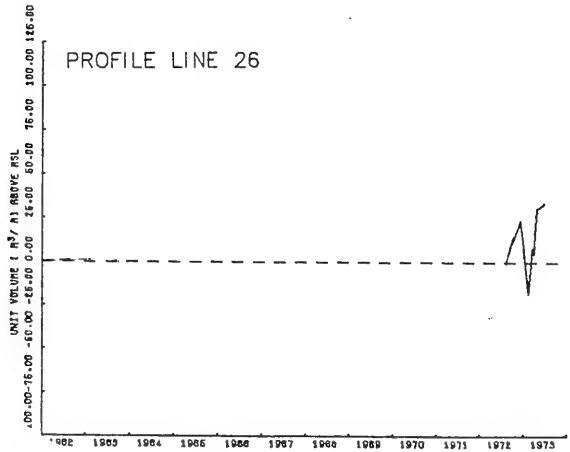
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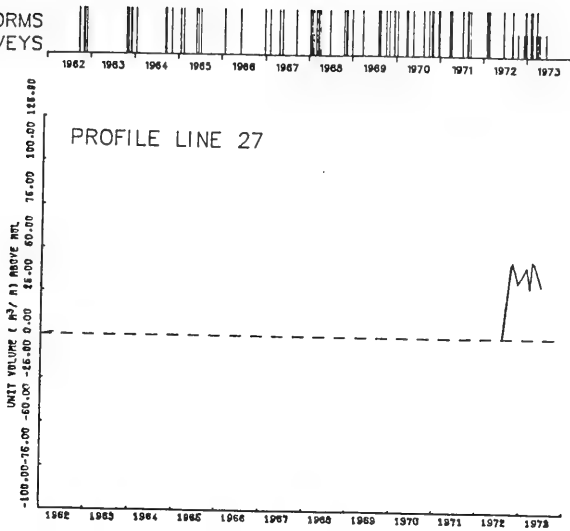
STORMS
SURVEYS



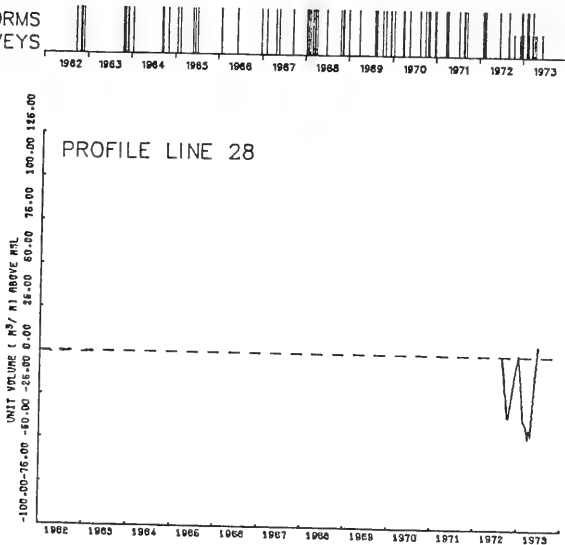
PROFILE LINE 26



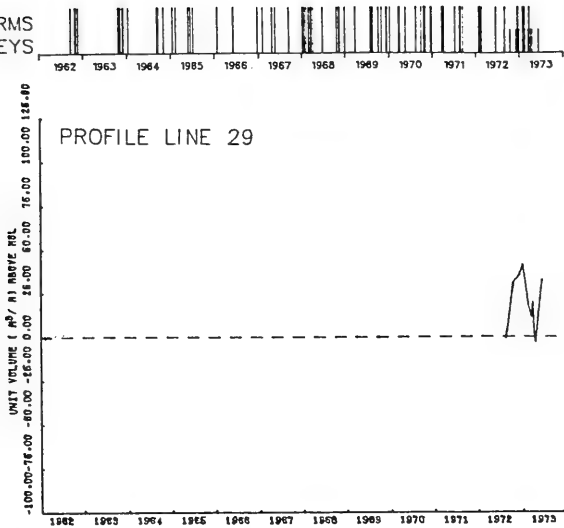
STORMS
SURVEYS



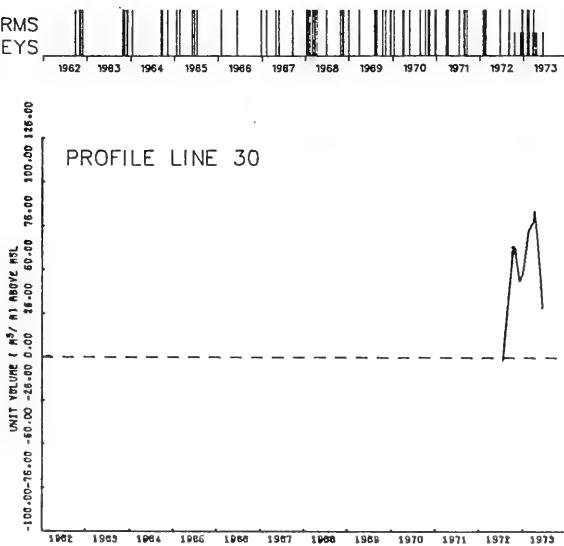
STORMS
SURVEYS



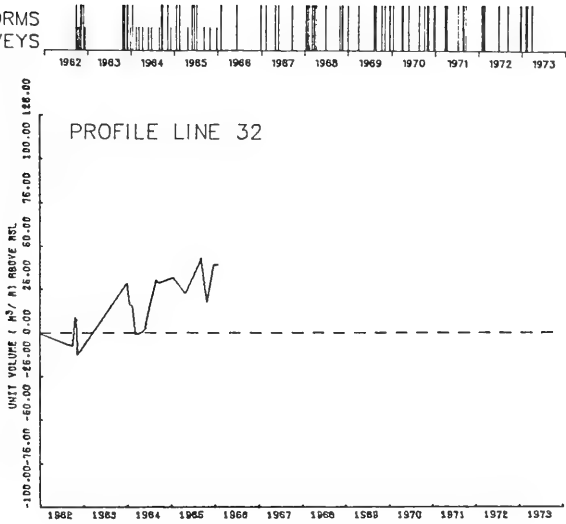
STORMS
SURVEYS



STORMS
SURVEYS



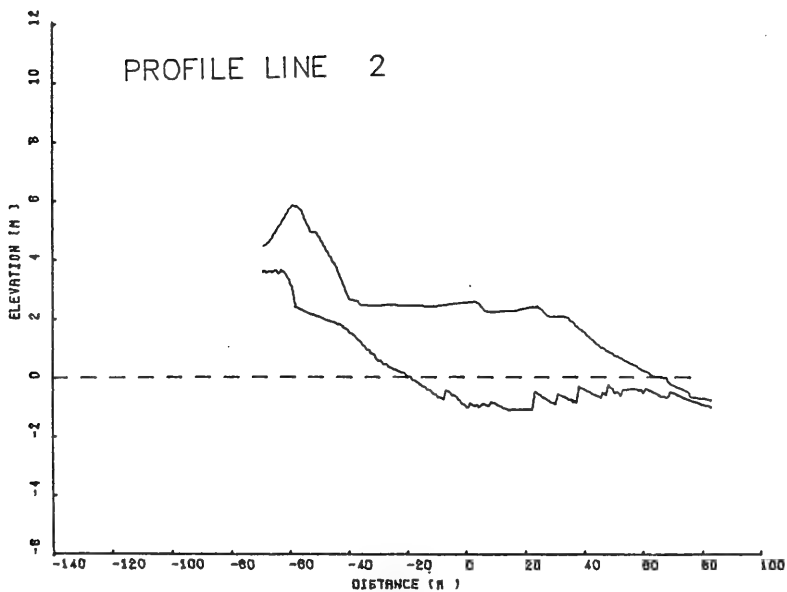
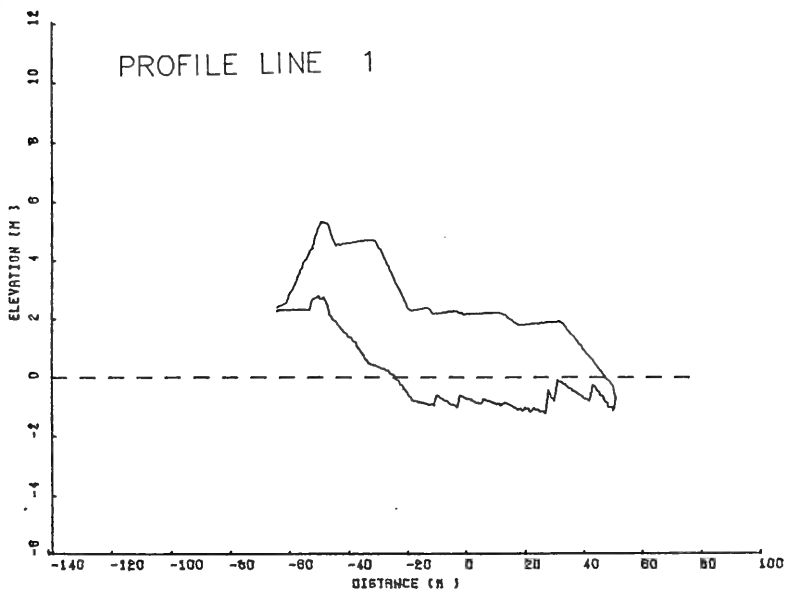
STORMS
SURVEYS

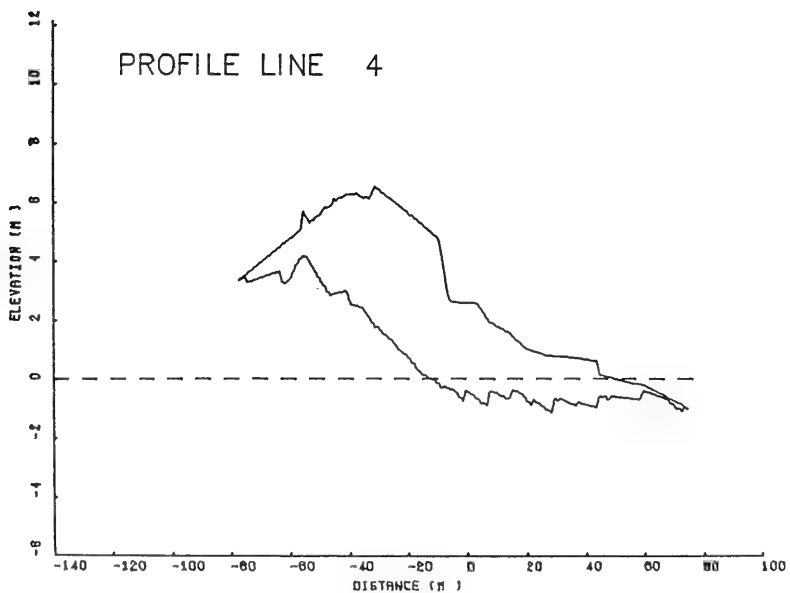
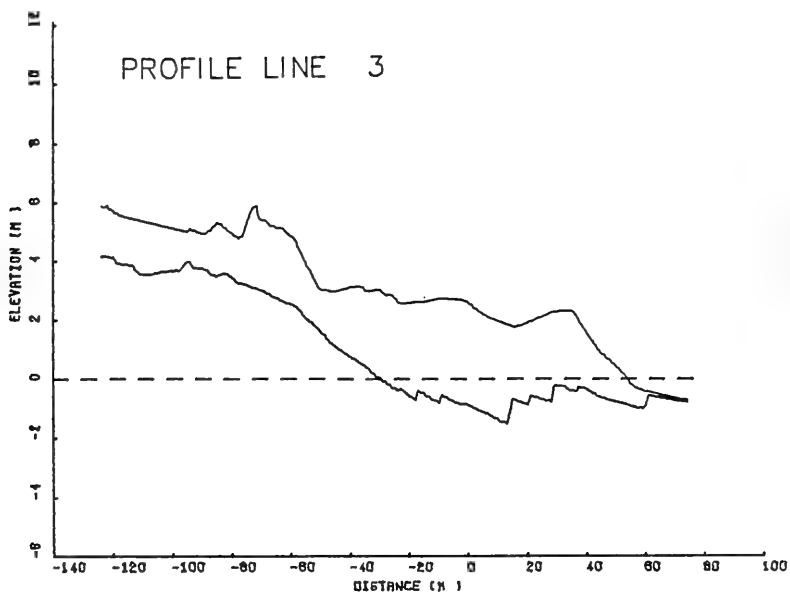


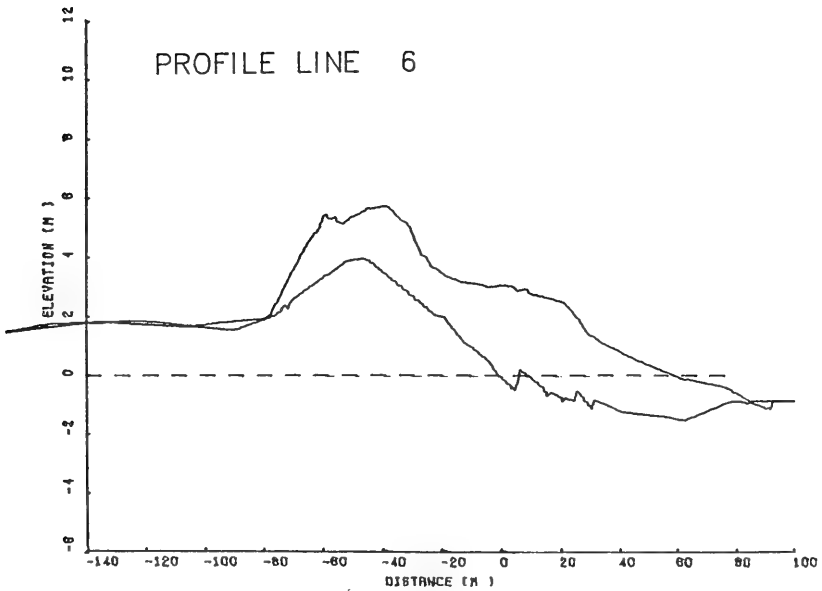
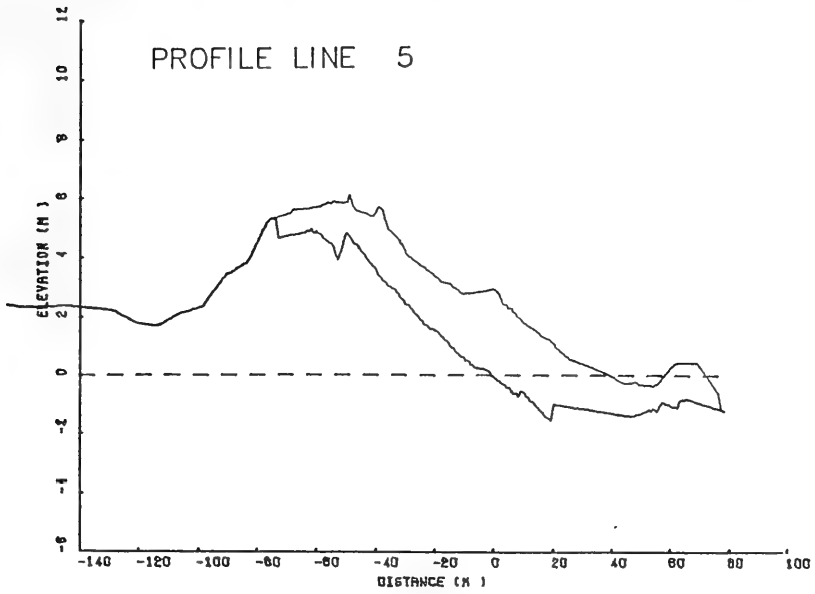
APPENDIX E

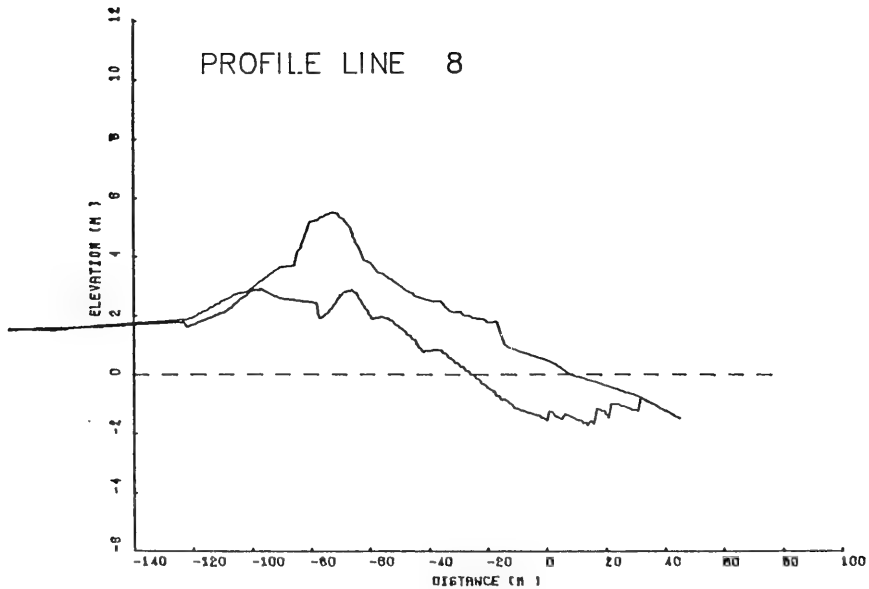
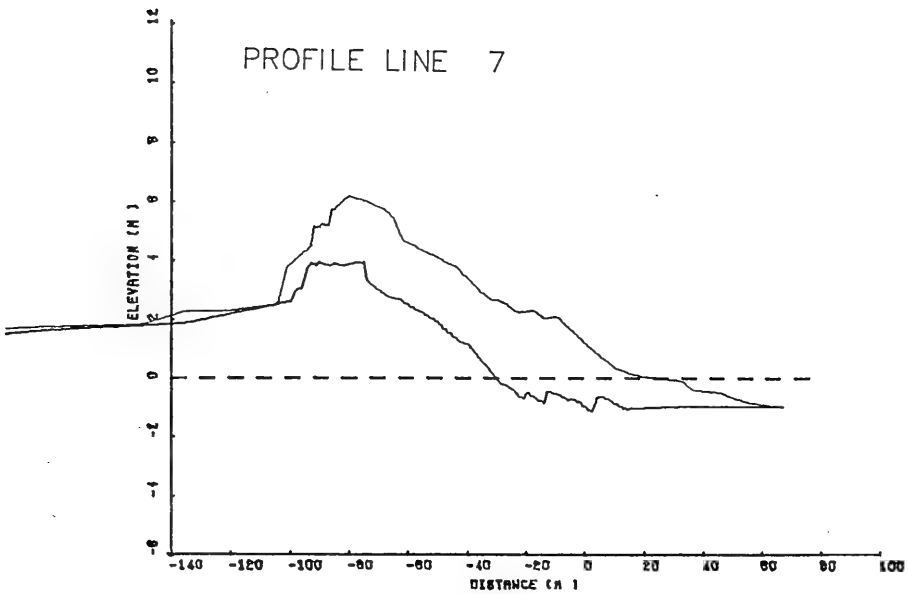
PROFILE ENVELOPES

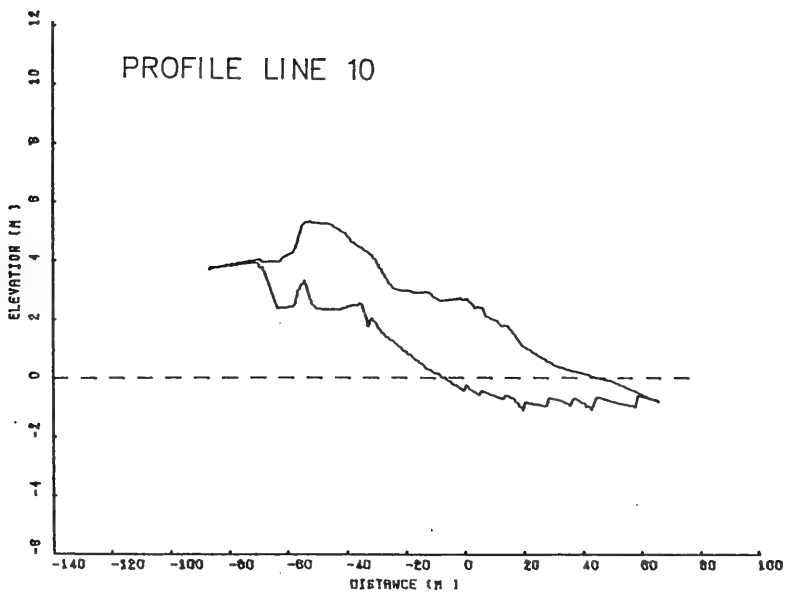
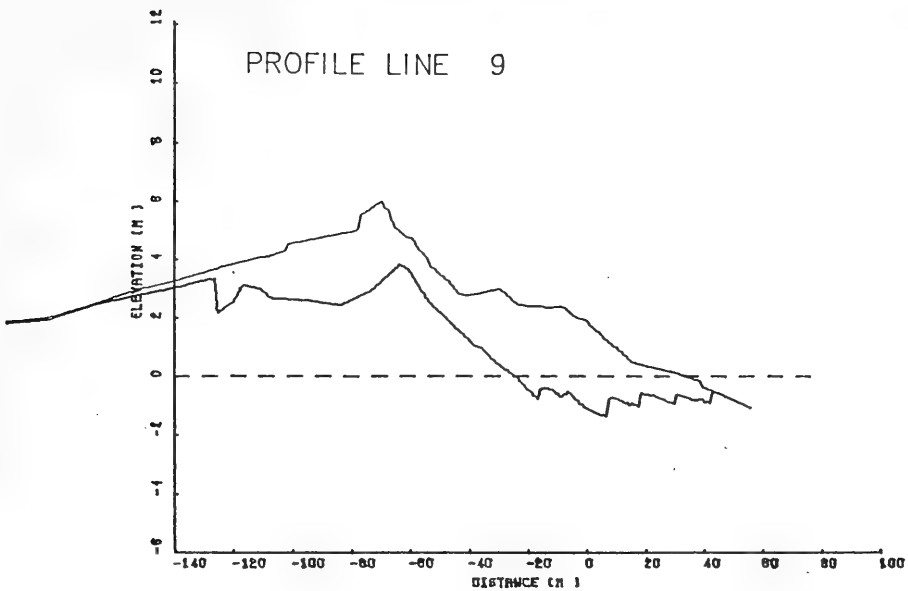
Horizontal distance in meters with zero at MSL intercept of first survey. The profile envelopes in this appendix show the maximum and minimum elevations measured along each profile line. The seaward ends of the profile surveys have been connected by the automatic plotter, but do not represent actual profile closure. Since these are envelopes, the plotted upper and lower bounds do not represent a profile that existed during any of the surveys.

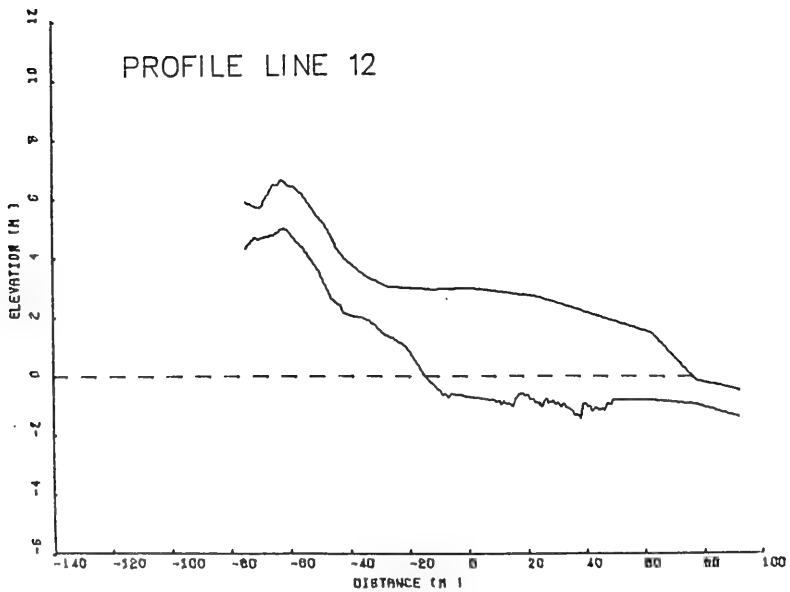
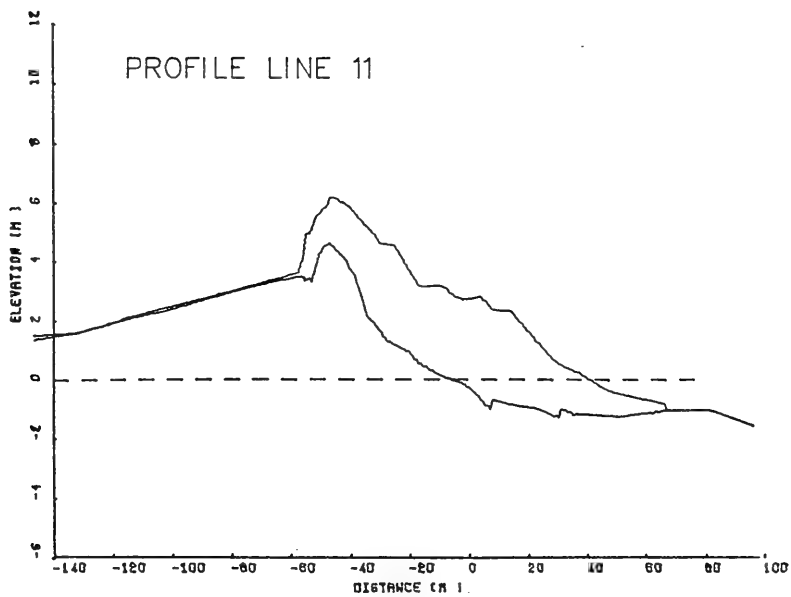


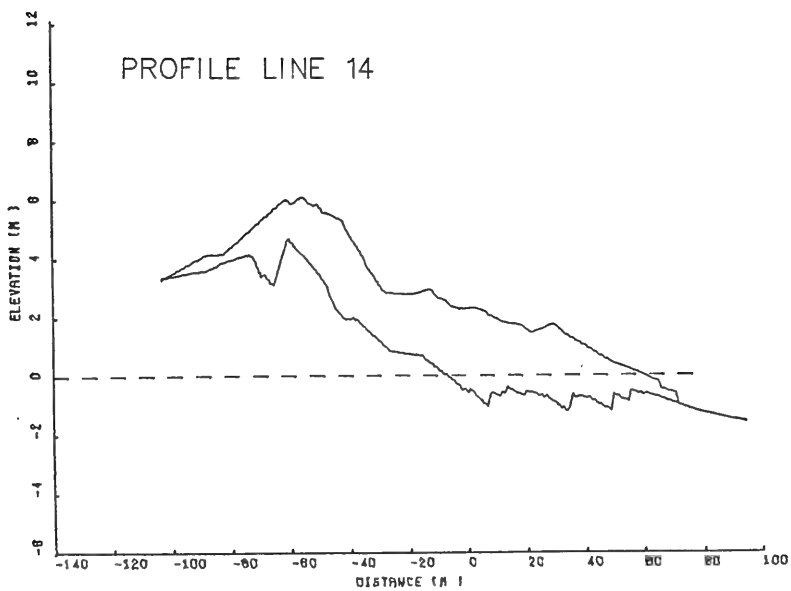
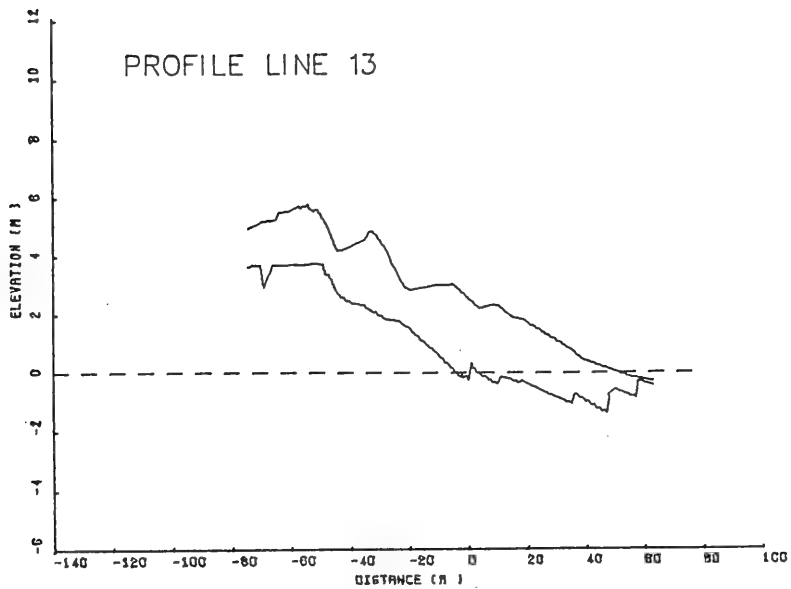


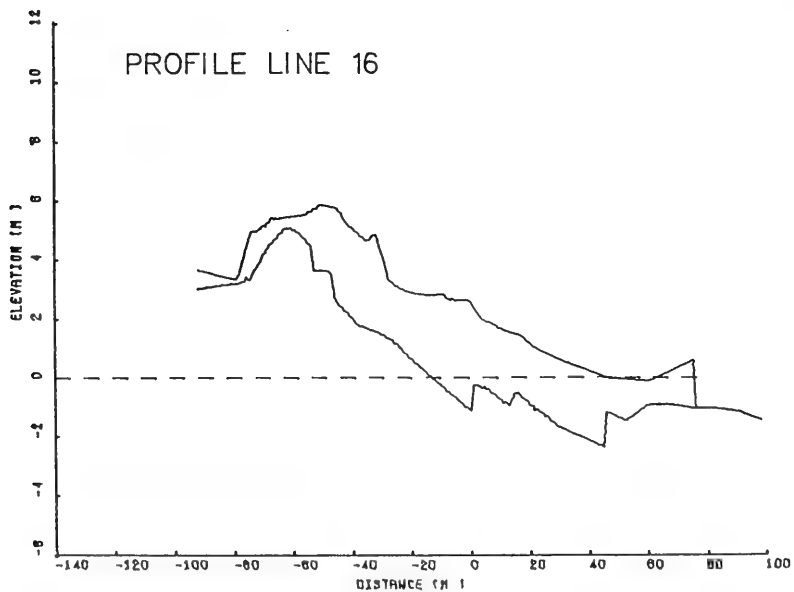
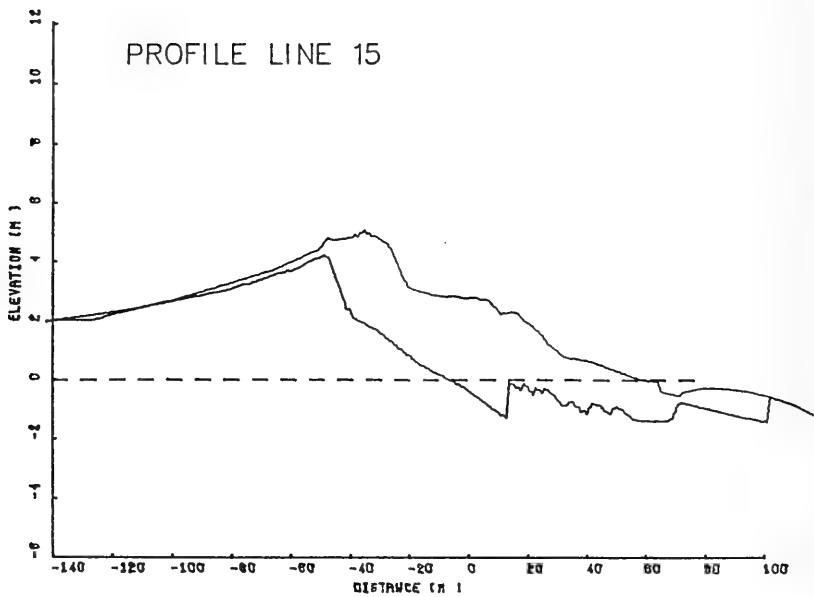


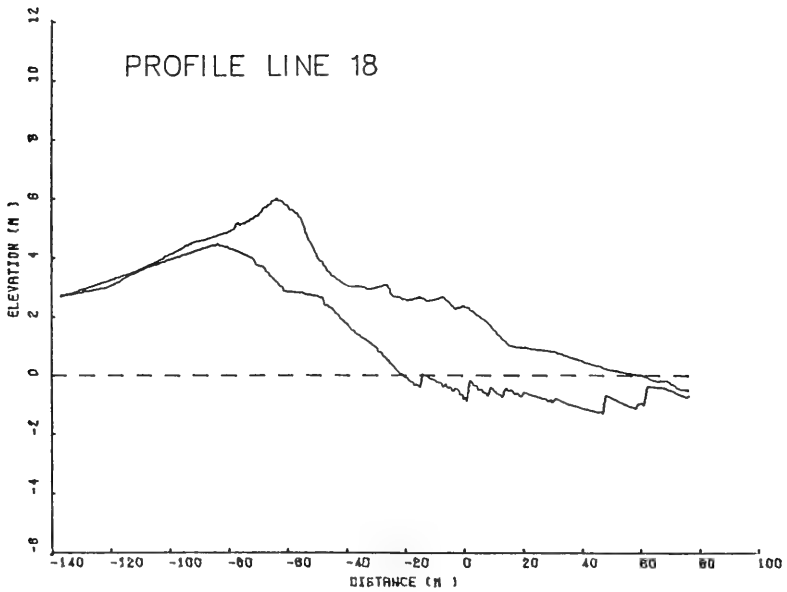
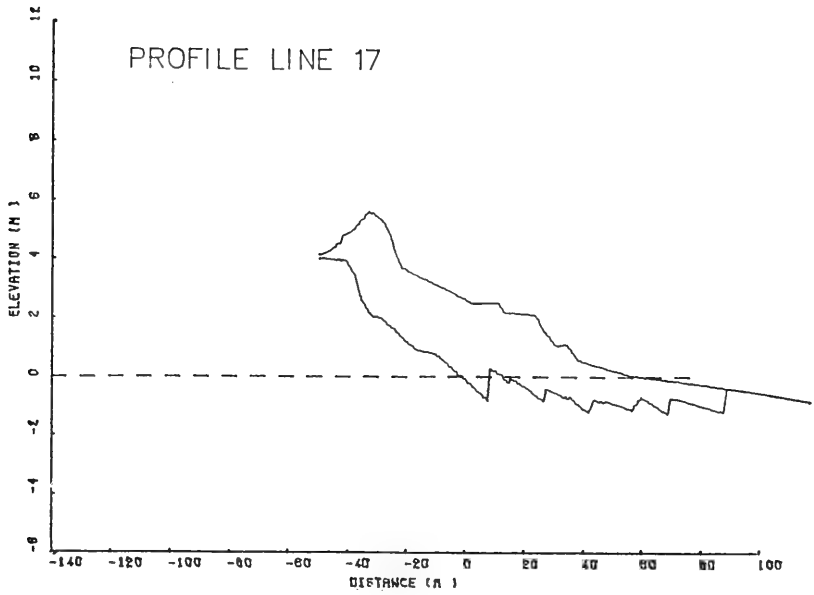


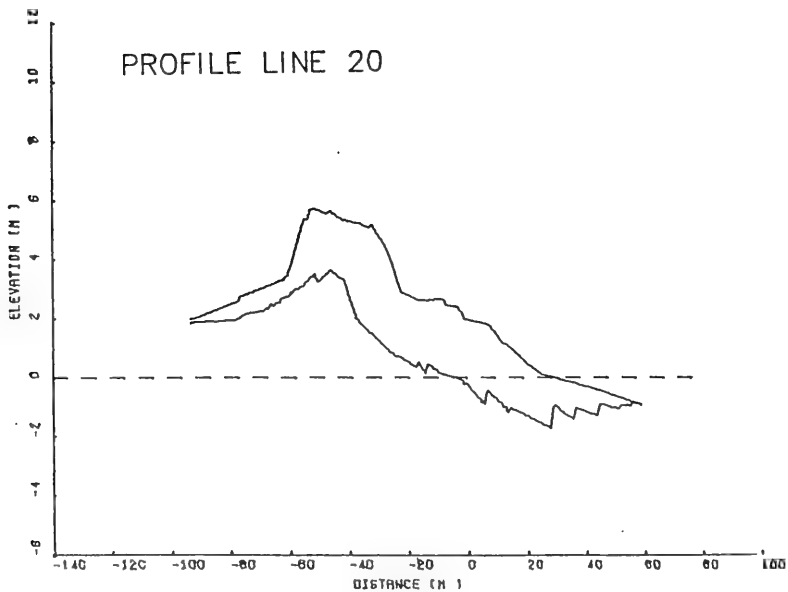
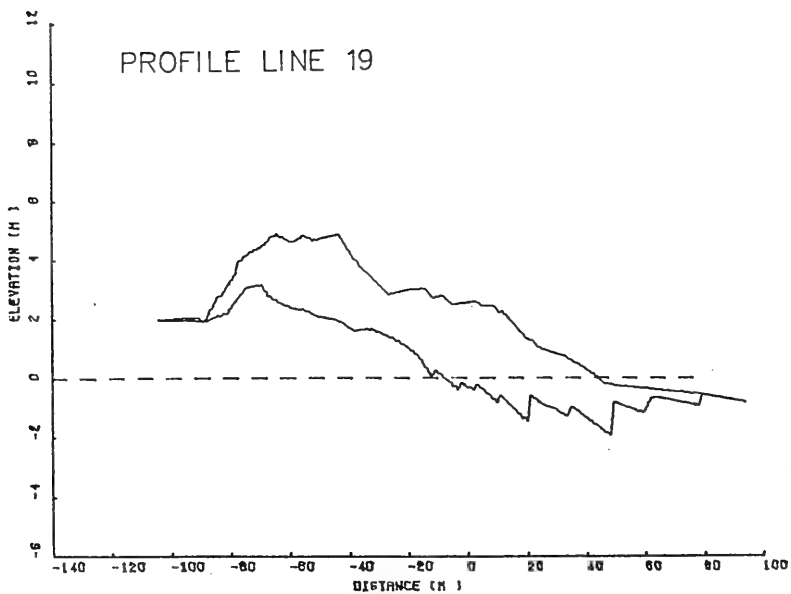


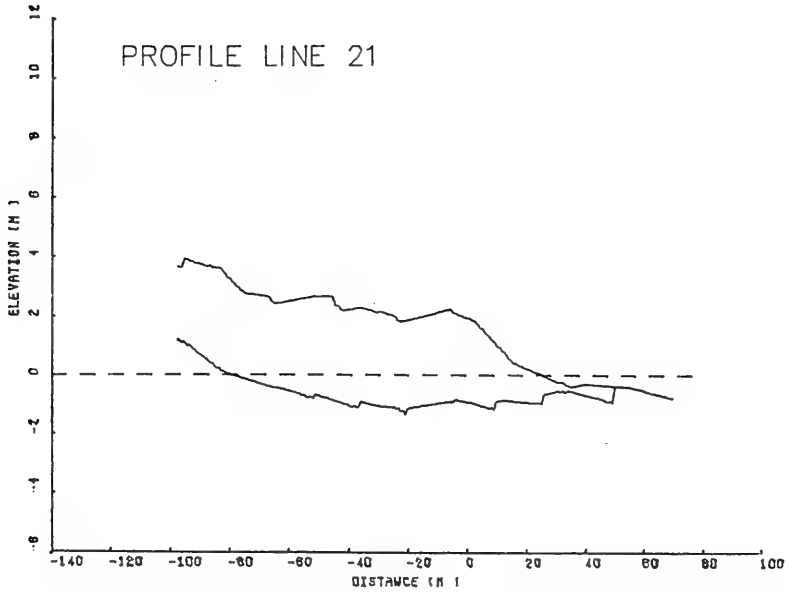


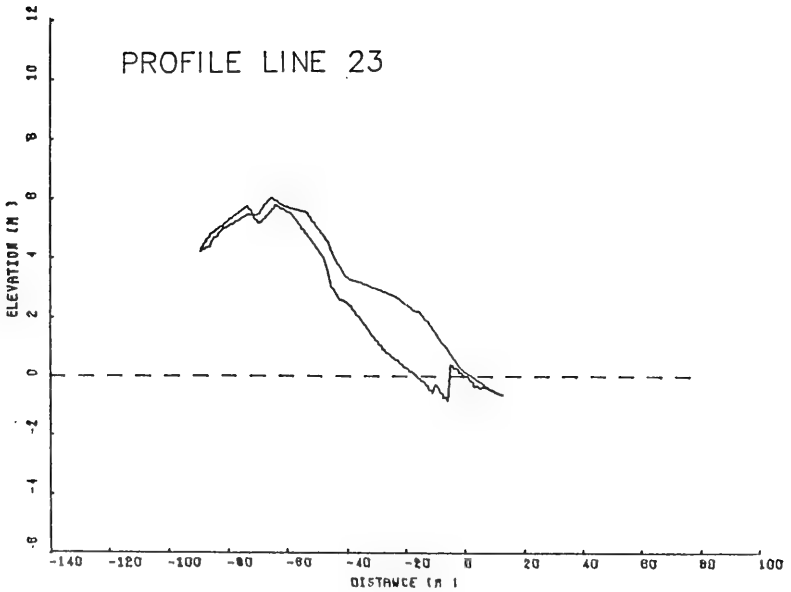
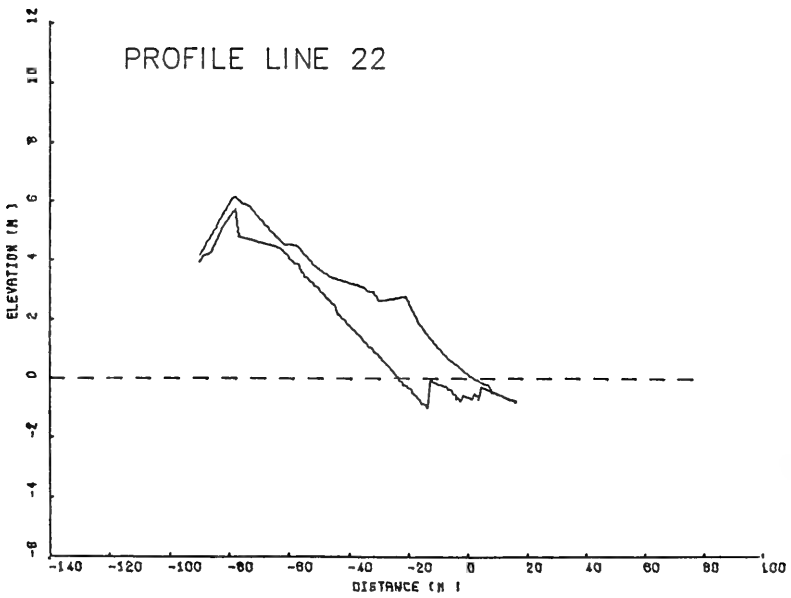


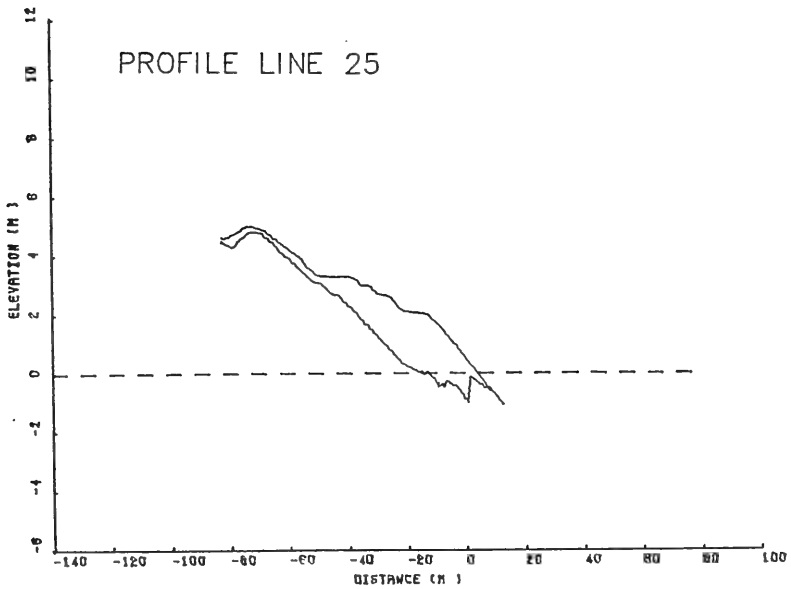
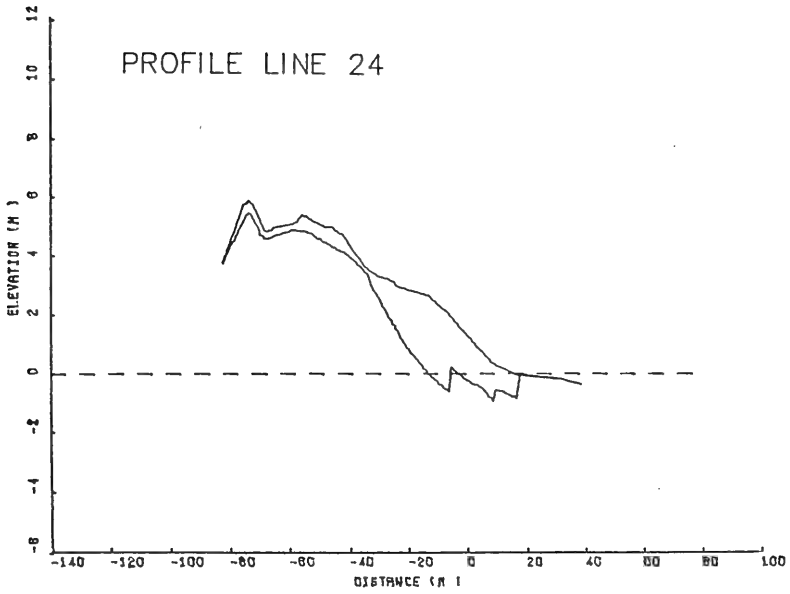


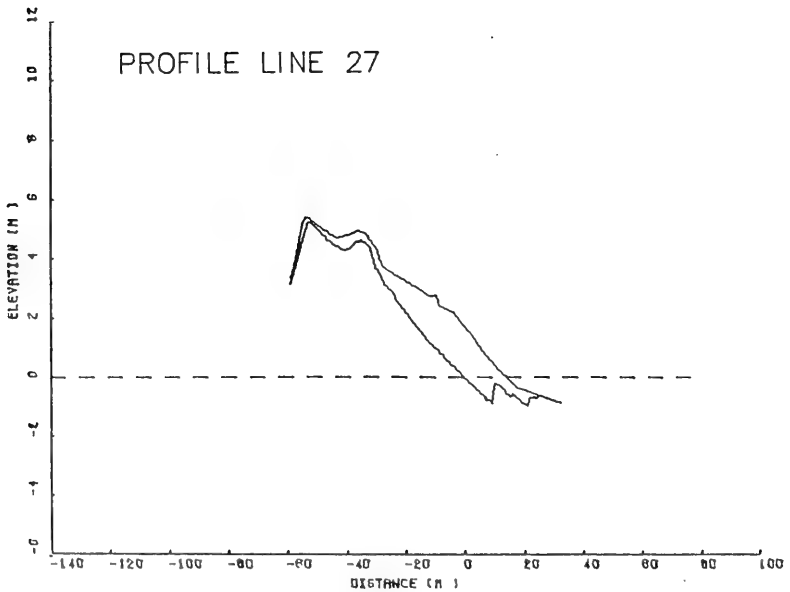
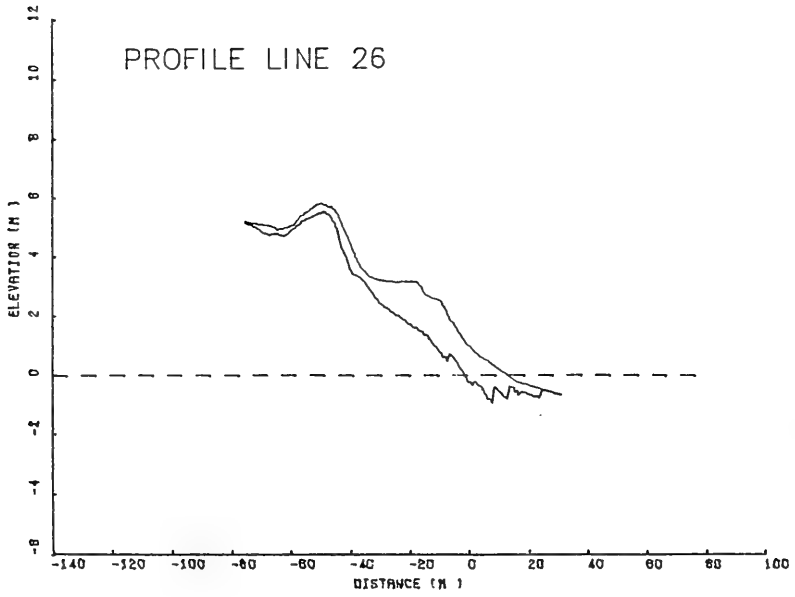


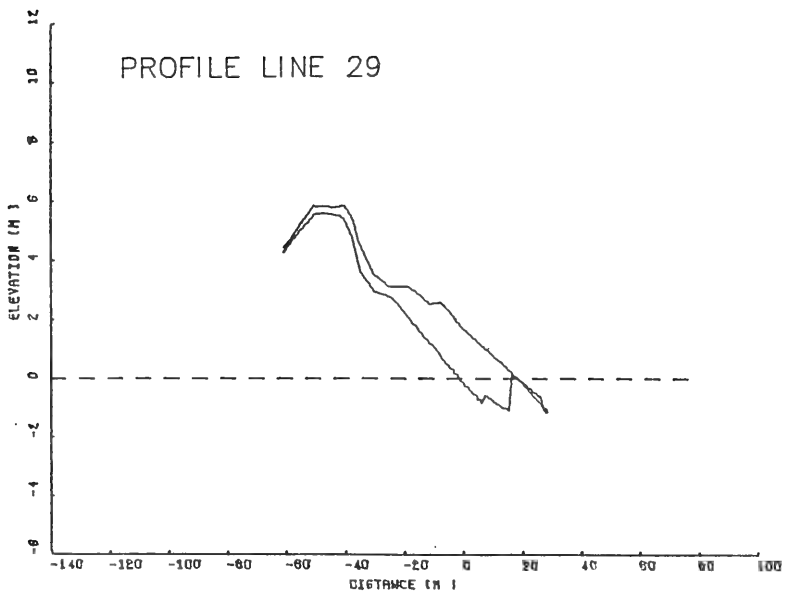
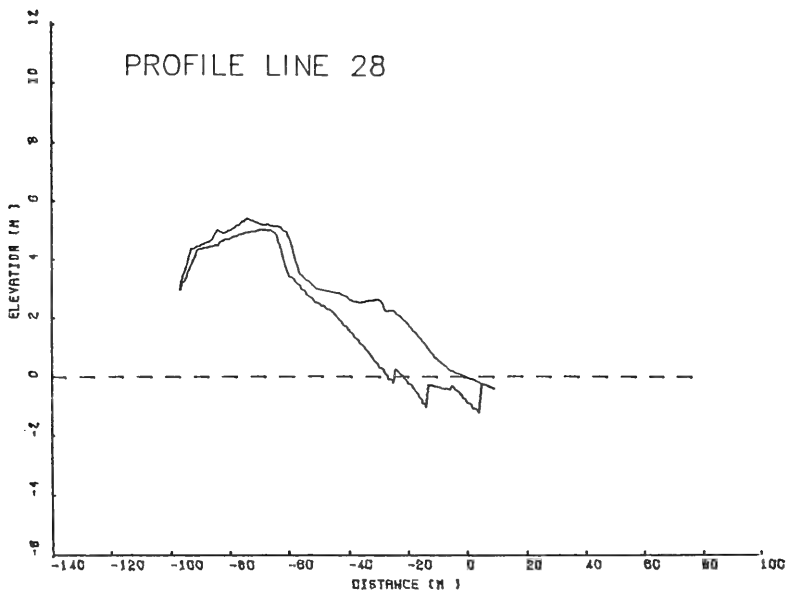


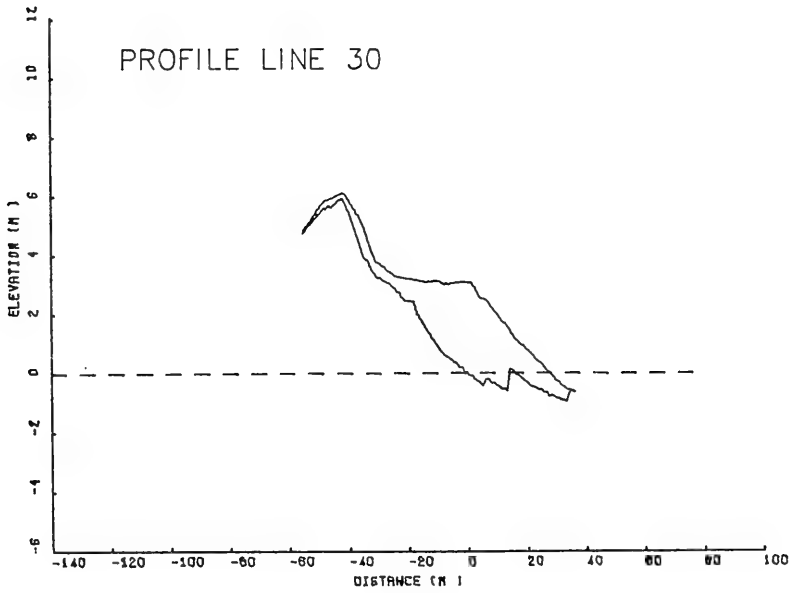


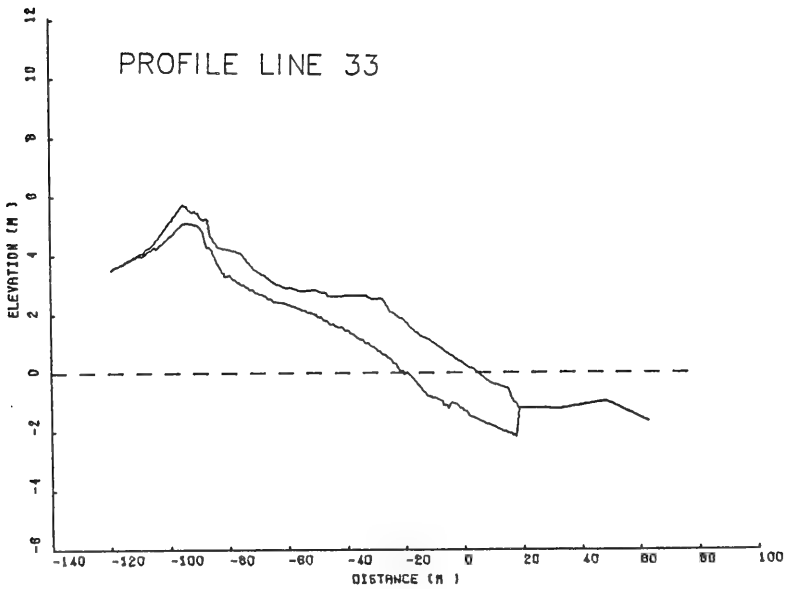
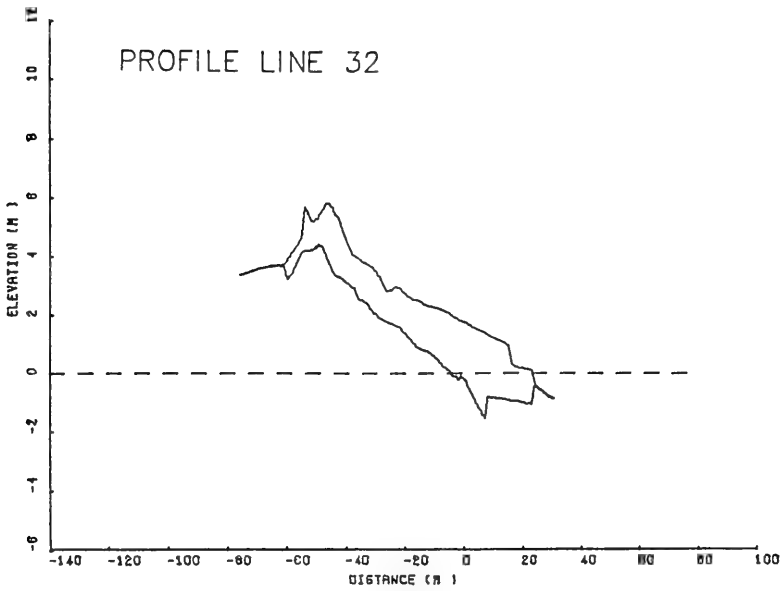












<p>Miller, Martin C. Beach changes at Long Beach Island, New Jersey, 1962-73 / by Martin C. Miller, David G. Aubrey...[et al.]. -- Fort Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1980. [289] p. : ill. : 27 cm. -- (Miscellaneous report -- U.S. Coastal Engineering Research Center ; no. 80-9) Includes bibliographical references and appendixes. Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. 1. Beach changes. 2. Beach erosion control. 3. Beach profile surveys. 4. Groins. 5. Long Beach Island, N.J. 6. Storm surges. I. Title. II. Aubrey, David G. III. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 80-9.</p> <p>TC203 .U581mr no. 80-9 627</p>	<p>Miller, Martin C. Beach changes at Long Beach Island, New Jersey, 1962-73 / by Martin C. Miller, David G. Aubrey...[et al.]. -- Fort Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1980. [289] p. : ill. : 27 cm. -- (Miscellaneous report -- U.S. Coastal Engineering Research Center ; no. 80-9) Includes bibliographical references and appendixes. Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. 1. Beach changes. 2. Beach erosion control. 3. Beach profile surveys. 4. Groins. 5. Long Beach Island, N.J. 6. Storm surges. I. Title. II. Aubrey, David G. III. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 80-9.</p> <p>TC203 .U581mr no. 80-9 627</p>
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