WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY

HUDSON RIVER CHANNEL, N. Y.

BATTERY TO WEST 20TH STREET

TO ACCOMPANY REPORT UPON SURVEY SUBMITTED PURSUANT TO RIVER AND HARBOR ACT OF JAN. 21, 1927.

SCALE OF FEET

600 0 600 1200 1800 2400

United States Engineer Office, First District, New York City, June 14, 1928.

Submitted Harold E. Loucks, Associate Engineer

Approved Robert E. Callahan, Lieut. Colonel, Corps of Engineers

Ex. b S. 3/109

Drawn by D.C.Y.

WIND DIAGRAM OF NEW YORK CITY, 1917-1926

LEGEND.
- 20 Years in 8 Years
- 50 Years in 10 Years
- 80 Years in 10 Years

BASED FROM OBSERVATIONS OF THE U.S. WEATHER BUREAU AT NO. BATTERY (PA. R.R.) N.Y.C.

HUDSON RIVER, N. Y. AND VICINITY
SCALE OF MILES

NOTE

Co-ordinates are based on a rectangular system having its origin at ▲ Memorial Church (U.S.C.& G.S. Station) and its northerly axis coincident with the true meridian through this station.

Soundings, Pushers, and Bench Mark elevations are expressed in feet and tenths and refer to the local plane of mean low water, which plane is 2.160 ft. below mean sea level, (1876 - 1881 inclusive) at Sandy Hook, N. J.

The character of the material penetrated is indicated by the abbreviations thus: M.– Mud and S.– Sand.

When two depths are shown in connection with a heavy dot the upper one represents a sounding and the lower one a probing.

ADDITIONS AND MODIFICATIONS SINCE DATE OF DRAWING

DATE	CHARACTER OF ADDITIONS OR MODIFICATIONS	LOCALITY	REMARKS

TABULATION OF BENCH MARKS

STA.	DESCRIPTION	ELEV. M.L.W.
Battery	Cut iron on wall 50' Nor. & 5' No. to Astor M. 33.53 from Nor. & 8.21 E from Pier No.1 New York	5.642
138	Cut in concrete 100 ft. S. of Whitehall St. & 50 ft. W. of curb line	8.955
224	Cut on water control inlet 9.2' on west & east of pier	9.826
52R	Cut in cast iron ring on S.W. cor. of man manning Pier No. 1 on the end of Pier 14 at the head	11.304
H-133	Q Cut in E. cor. of curb, being 11.5' E. cor. of station House, front of Pier 7 and 1.5' S. of Marker 7, forming offset point for N. Pier, Hoboken, N. J.	11.955
H-134	Q Cut on N. side of curb 5.3 ft. E. of E. cor. of entrance of Passenger & Freight Station of American Line Pier, Hoboken, N. J.	9.037
H-139	Q & Cut on concrete under hydr. East side of service cock 10 ft. N. of curb & 5.5 ft. E. of E. cor. of entrance of Passenger & Freight Station of Hamburg American Line Pier, Hoboken, N. J.	
H-148	Q Cut on East cor. of East mooring of head of Caisson at Commercial Trust Co. Building No. 15 Exchange Place, Jersey City, N.J.	8.864 / 11.227

SURVEY RECORD

DATE	CHARACTER OF WORK	LOCALITY	ORIGINAL WORK SHOWN ON MAP
1924	Triangulation	Entire Sheet	From Various Records
1924	Levels		
1924-27	Topography	Manhattan Shore	
1926-27	"	Hoboken Shore	
1926	Sounding L	On Range Notes	
1926	"	Off Pier A	
1926-27	"	Jersey City Shore	
1927	"		
1927	"	New Jersey Shore from Co-ord 1-8000	
1927	"	Manhattan Shore from Co-ord 1-8000	
1927	"	Along Manhattan Side from Pier 1 to Pier 14	
1927	"	Manhattan Shore from Pier 14 to 23 and adjacent along Manhattan Shore from Pier 23 to Battery	
1928	"	New Jersey Shore from Co-ord 1-8000 N. South end of sheet	

TABULATION OF CO-ORDINATES OF TRIANGULATION STATIONS

STA.	LATITUDE NORTH	LATITUDE SOUTH	DEPARTURE EAST	DEPARTURE WEST
Barnes		25725.23		12337.73
Jersey Tri.		32716.98		17456.88
Fort W.		38503.53		17603.52
Park N.J.		27477.33		21469.73
Osborn		24860.18		20614.53
Q 80		25805.36		20332.85
Q 80		25345.72		19193.57
Liberty		18812.96		15376.55
Governors Island		15814.36		15133.51
Lighthouse				
Fort A.		13118.16		13660.91
Q.S.A.M.S.		14691.02		14630.96

TIDAL DATA

EXTREME HIGH WATER	+ 8.3 FT.	FEB. 20, 1927
MEAN HIGH WATER	+ 4.4 FT.	
MEAN SEA LEVEL	+ 2.160 FT.	4.4 FT. MEAN RANGE OF TIDE
MEAN LOW WATER	0.0 FT.	
LOWEST LOW WATER	- 3.0 FT.	DEC. 28, 1925

EXPLANATION

- Triangulation Sta.
- Bench Marks
- 40 Contour 40 feet
- 40 Rock Contour 40 feet
- 25 Probing

HUDSON & MANHATTAN R. R. TUNNEL NORTH TUBE

HUDSON & MANHATTAN R. R. TUNNEL SOUTH TUBE

NEW YORK & NEW JERSEY VEHICULAR TUNNEL

HUDSON & MANHATTAN R. R. TUNNEL SOUTH TUBE

HUDSON & MANHATTAN R. R. TUNNEL NORTH TUBE