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2532a

Diag. Cht. No. 1218-2

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*  
Field No. .... Office No. *2532*  
*2532A*

LOCALITY

State *Delaware*  
General locality *Off Breakwater*  
Locality *at Lewes, Del.*

1941

CHIEF OF PARTY

*H. L. Marudis*

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DATE .....

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MAR 29 1902 06303

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1901

U. S. COAST AND GEODETIC SURVEY.

*O. H. Tittmann* Superintendent.

State: *Delaware*

U. S. C. & G. SURVEY.  
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MAR 29 1902  
Acc. No. 2532  
CLASS

DESCRIPTIVE REPORT.

*Hydrographic Sheet No. 2532*

LOCALITY:

*Off Breakwater  
at  
Lewes, Del.*

*1901*  
~~18~~

CHIEF OF PARTY:

*H. L. Marindin, Asst.*

*Range Mark descriptions received from  
Asst. in charge Apr. 7 1903*

2532

Title: Treasury Department  
W Coast and Geodetic Survey  
O. H. Tittmann, Supt.  
~~Speed Trial Course off.~~  
The Outer Breakwater

Lower Delaware

H. L. Mowbrin, Assistant, Chief of Party

May 1901

Scale  $\frac{1}{20,000}$

NOTE: The relocation of the course in Aug. and Sept. 1901 due to the destruction of the 2 front-range marks by the contractors in finishing the Breakwater in July 1901, is indicated in Red lines and Red figures

Washington, DC. Sept 15-1901

signed H. L. Mowbrin, Asst.

This sheet represents the work necessary to establish and locate a Speed Trial Course off the new Breakwater off Lower Delaware in about 20 fathoms of depth.

The work was undertaken at the instance of The William Cramp & Sons Ship & Engine Building Co of Philadelphia, Pa.

who desired to have a trial course in the Delaware River and who agreed to defray all the expenses of establishing the course.

The Naval Department was first asked by the Messrs W<sup>m</sup> Cramp and Sons to do the work as it was to be used for the trials of Torpedos and other boats then building or to be built for the Government.

The offer was declined with the suggestion that the Coast Survey would do the work at the expense of the firm of Messrs Cramp, & sons it would be satisfactory to the Board of examination and Survey of the Navy Dept. and the latter would designate an officer from the board to cooperate with the Coast Survey officer in the work.

Lieut. Comdr C. E. Vreeland U.S.N. was designated by the Navy Dept to act with the Coast Survey representative and hon H. L. Masindin was assigned as the latter.

During the last part of August 1901, the triangulation, based on the line, - Delaware Breakwater Near Range Lt Ho to Cape Henlopen Lt Ho, was begun. It had been agreed with Messrs Cramp & Sons, at their suggestion, that two of the range marks should be located on the ends of the new Breakwater notwithstanding its unfinished condition as the course was required for immediate use. Thus two marks were built at the extreme ends of the outer breakwater and one mark on the old breakwater, the fourth mark to be used being the top of the Light house marking the Near Range (called by the natives The "Green Hills Lt House")

The direction of the trial course was to be decided by the range of the mark at north end of Breakwater on to the Delaware Breakwater Near Range Lt and at right angles to it in not less than

Mr Burchard  
This should be put  
with orig. sheet  
for filed as description  
maps - 4/13

# Description of Range

## Delaware Breakwater Speed Trial Course.

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By Mr. L. Marindin  
4/7/3

### West Front Range

Bracket Lantern on top of Post.  
12x12x20' high, painted white, the post is  
well inside of the west end of the Breakwater.

### West Back Range

Is the Rear Range Lt Ho. locally known  
as the Green Hills Lt. Ho. and is about 3 miles  
to the westward of Lewes. Del.

### East Front Range

This range mark is situated on the  
extreme ~~end~~ Eastern End of the New  
Breakwater and consists of a triangle with its  
base on the Breakwater and its apex pointing  
upward, the whole is painted white.

### East Back Range

Situated on the old Breakwater about  
1/2 way between the west end of the old Breakwater and  
the Front Range Lt Ho. It consists of a tall  
tripod signal, with one face turned towards the East Front  
Range mark; when built it was surmounted by a  
center pole and barrel painted black. The triangular  
face was painted white.

20 fathoms of depth.

The first location for the course gave a length of 2336.4 meters = 1.261 Nautical miles and a direction S 41° 03' 30" E (true) or S 35° 14' E magnetic 1901.

After the relocation of the new marks made necessary by the destruction of the old marks during the month of July, 1901. The course had a length of 2311.0 meters = 1.247 Naut. Miles with a direction of S 40° 52' E true or 35° 02' mag. 1901 -

The Hydrography shown on the sheet was taken from the last test Hydro-survey; no depths were measured (with the exception of a few casts of the lead when testing the visibility of the Range and marks, which however were not located) with the purpose of putting them down on the chart.

The 10 Ice breakers indicated on the sheet were in an unfinished condition at the time the course was located; but are to be completed by the addition of the superstructure in a comparatively short time.

Henry L. Marston  
Assistant.

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COAST AND  
GEODETIC SURVEY

U. S. C. & G. SURVEY,  
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APR 7 - 1906  
Acc. No.

APR 7

FILE REFERRED TO SUPERINTENDENT

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

O. H. Tittmann  
*Superintendent.*

State: Delaware

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DESCRIPTIVE REPORT.

Hydrographic Sheet No. 2532<sup>a</sup>

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LOCALITY:

Speed Trial Course  
off  
Delaware Breakwaters

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1906

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CHIEF OF PARTY:

C. C. Gates

2532<sup>a</sup>

CO

Descriptive Report to accompany Chart of  
Speed Trial Course off Delaware Breakwater

Assistant C. C. Yates, Chief of Party - March 1906

U. S. SURVEY,  
LIBRARY AND ARCHIVES,

APR 7 - 1906

Acc. No.

Contents

1. Copy of letter to Superintendent dated March 6<sup>th</sup> from William Cramp + Sons requesting the relocation of the Trial Course
2. Letter to Superintendent dated March 2<sup>d</sup> from Inspector of Geodesy relating to relocation of the Trial Course and inclosing description of stations and range marks established by Asst. H. L. Marindin 1901
3. Letter to C. C. Yates dated March 10<sup>th</sup> from Superintendent transmitting Geographical Positions, vicinity of Delaware Breakwater
4. Copy of letter to William Cramp + Sons dated March 31<sup>st</sup>, from Superintendent, transmitting a copy of "Chart of Speed Trial Course off Delaware Breakwater"

References to other useful information  
relating to "Speed Trial Course"

1 Vol - original - Horizontal Angles and Description of Stations -  
C. C. Yates, Assistant, Chief of Party - March 1906

Note Description of stations are in same volume with  
Hor. Ang. and are probably filed under latter head.

Hyd. Sheet No 2532 - "Speed Trial Course off Delaware Breakwater"  
H. L. Marindin Assistant, Chief of Party - May + Sept 1901

Computations, scheme of triangulation, etc

As shown in computations by Computing Division of works  
of Asst. C. C. Yates - 1906



Yates

(COPY.)

THE WILLIAM CRAMP & SONS SHIP AND ENGINE BUILDING CO.

Office of the General Manager

Beach and Ball Streets

Philadelphia.

March 6th, 1906.

Mr. O. H. Tittman,

Superintendent of Coast and Geodetic Survey,

Department of Commerce & Labor,

Washington, District of Columbia.

Dear Sir:-

We are building a vessel for the New York and Cuba Mail Steamship Company, which we desire to try for speed under the requirements of the Postal Subsidy Act over the measured course at the Breakwater in Delaware Bay.

As you are aware certain ranges have been established there for this purpose in time past. The exact distance of this course was given to us by you in your letter of December 7th, 1903; there seems, however, to be some doubt as to whether the ranges have been disturbed since the course was measured at the time referred to.

We have, therefore, to request that the ranges as established, be measured by the Coast Survey, and that we be furnished with a copy of the survey, in order that the same may be presented to the authorities at the Navy Department.

We expect to make these speed trials on the 2nd or 3rd proximo, and have to request that this survey be made in ample time to arrange our program for the dates mentioned. It is understood, of course, that the cost of making this survey will be met by this Company.

When the survey is made we shall be glad if you will communicate with Commander H. Osterhaus, of the Board of Inspection and Survey, Navy Department, relative to the location and character of the marks on the ranges, (as he questions the suitability of the present markings.) *As he has been informed by the*

We would also be glad to have you inform us when the

-2-

survey will be made, in order that our Captain Faulkner may be present and thoroughly understand the location of the ranges.

Yours very truly,

THE WILLIAM CRAMP & SONS SHIP & ENGINE BUILDING COMPANY,

(Sgd) H. W. Hand,

General Manager.

Department of Commerce and Labor

AE

COAST AND GEODETIC SURVEY

Washington

March 2, 1906.

The Superintendent,  
Coast and Geodetic Survey,  
O f f i c e .

Sir:

There are enclosed herewith two sheets, showing descriptions of the four range marks at the Delaware Breakwater Speed Trial Course, as established by Assistant H. L. Marinden, in 1901.

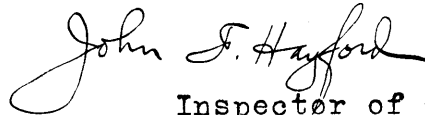
After the second establishment of the trial course in 1901, corresponding to these descriptions, a wooden structure was erected over the East Front Range Mark and that structure was subsequently destroyed by a gale, (in 1903). Also in 1903, after the gale, a large <sup>(?)</sup> iron structure was erected over this mark, which is 41 feet high, too high to permit the East Back Range Mark to be seen from a vessel. These facts make it certain that a new East Front Range must be established and that it must be established in a slightly different position from the old East Front Range.

The West Front Range, fixed by a post 12"x12"x20' high, was in a position in which it was subject to damage by ice. Captain John Ross gives it as his opinion that it <sup>probably</sup> ~~possibly~~ has been damaged by ice since 1903, possibly destroyed and replaced as nearly as possible in the old position. If such is the case, it should be re-determined by triangulation before used as a front range for a trial course.

There is no information at hand indicating that there will

be any difficulty in recovering either of the back ranges, as one is a permanent light and the other is marked by a hole, circle and triangle cut in the old and inner breakwater. It is probable, therefore, that there will be little difficulty in re-establishing the trial course agreeing closely with the old trial course, the East Back Range and the East Front Range each being shifted toward the West Ranges enough to clear the light house now occupying the old position of the East Front Range.

Respectfully,



Inspector of Geodetic Work.

H. L. M. Sept 1901

DESCRIPTION OF RANGE MARKS

DELAWARE BREAKWATER SPEED TRIAL COURSE.

WEST FRONT RANGE.

Bracket Lantern on top of Post 12"x12"x20" high, painted white, the post is well inside of the west end of the Breakwater.

WEST BACK RANGE.

Is the Rear Range Lt. Ho., locally known as the Green Hills Lt. Ho., and is about 3 miles to the westward of Lewes, Del.

EAST FRONT RANGE.

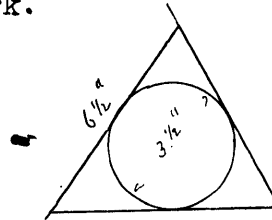
This range mark is situated on the extreme eastern end of the new Breakwater and consists of a triangle with its base on the Breakwater and its apex pointing upward, the whole is painted white.

EAST BACK RANGE.

Situated on the old Breakwater, about one-half way between the west end of the old Breakwater and the Front Range Lt. Ho. It consists of a tall tripod signal with one face turned towards the East Front Range Mark; when built it was surmounted by a center pole and barrel painted black. The triangular face was painted white. It is marked with a shallow hole about 1/2 inch deep, cut into the granite, and a circle and triangle also cut into the stone as shown below. The mark falls on one of the smaller blocks of granite. This is the position for Eastern Range Back Range mark. (About 230 feet easterly of angle in Breakwater.) The mark is a tripod 28-1/2 ft. high to head, surmounted by a 4x4 center pole striped black and white and a board 12 in. wide, also striped black and white, is nailed to the front part of the pole to widen the pole. Caution: The mark for this range differs

East Back Range, -2.

from the mark for 3rd position in having the ring cut inside the triangle. The 3rd position mark has a triangle in black paint while nothing of this kind was put on this mark.



Department of Commerce and Labor  
COAST AND GEODETIC SURVEY  
Washington

AE J.F.H.

March 10, 1906.

Mr. C. C. Yates,  
Assistant, Coast and Geodetic Survey,  
Office.

Sir:

For your use in carrying out your instructions of March 8th, in regard to the re-establishment of the range beacons at Delaware Breakwater speed trial course, there are transmitted herewith 14 positions in that vicinity.

Respectfully,

*O. H. Tuttle*  
Superintendent.

*AB-7477*

# POSITIONS.

*State*

	AZIMUTH. " "	BACK AZIMUTH. " "	TO STATIONS.	DISTANCE. Metres.	LOGARITHMS.

Do not write in this margin.



# GEOGRAPHICAL

Locality Delaware Breakwater.

Approximately U.S. Standard Datum.

9-3747

STATIONS.	LATITUDE.	Seconds in Metres.	LONGITUDE.	Seconds in Metres.
West Front Range 1901 All n.d.	38 49 57.34	1768.1	75 06 21.902	528.3
East Front Range 1901	38 48 51.127	1576.6	75 05 33.327	804.0
East Rear Range or 6th Pos. 1901	38 48 03.964	122.2	75 06 43.007	1037.8
Cape Henlopen L. H. 1841-96	38 46 41.577	1282.1	75 05 02. <sup>897</sup> <del>944</del>	<del>71.1</del> <sup>69.9</sup>
Milton church spire 1896	38 46 36.81	1135.0	75 18 39.73	959.1
Lewes Presbyterian ch. sp. 1896.	38 46 20.33	626.9	75 08 22.38	540.2
Lewes Episcopal ch. spire 1877-96	38 46 31.49	971.0	75 08 27.71	668.9
Lewes Methodist ch. spire 1877-96	38 46 27.59	850.7	75 08 34.86	841.5
Delaware Breakwater Rear 1882-96 Range L.H.	38 47 23.19	715.0	75 10 09.78	236.0
Delaware Breakwater Front 1877-96 Range L.H.	38 47 57.11	1761.0	75 06 29.09	702.0
Delaware Breakwater East 1896 End L.H.	38 47 49.60	1529.4	75 06 01.03	24.9
Lewes Marine Hospital, flag- ;896 staff	38 47 11.01	339.5	75 06 02.08	50.2

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# POSITIONS.

-1.

State Delaware.

AZIMUTH.	BACK AZIMUTH.	TO STATIONS.	DISTANCE. Metres.	LOGARITHMS.
342 28 03.1	162 28 52.6	Cape Henlopen LH	6330.5	3.8014387
49 10 23.3	229 08 00.5	Del.Break.Rear LH	7268.1	3.8614193
349 34 52.1	169 35 11.2	Cape Henlopen LH	4061.7	3.6087090
67 54 08.3	247 51 15.1	Del.Break.Rear LH	7201.7	3.8574357
316 25 41.9	136 26 44.6	Cape Henlopen LH	3506.0	3.5448063
75 52 27.9	255 50 18.4	Del.Break.Rear LH	5145.9	3.7114590
139 31 49.53	319 22 38.32	Stone	32550.55	4.5125583
211 54 33.17	31 59 11.95	Cape May L.H.	20249.39	4.3064 <sup>120</sup> <del>089</del>
240 12 50	60 26 01	Cape May L.H.	35001.5	4.544087
269 30 05	89 38 37	Cape Henlopen LH	19717.7	4.294856
185 28 45	5 29 42	Brandywine Sh.LH	23837.9	4.377268
262 13 56	82 16 01	Cape Henlopen LH	4859.8	3.686614
147 07 29	327 00 26	Stone	29841.1	4.474815
266 22 42	86 24 50	Cape Henlopen LH	4953.7	3.694929
147 31 38	327 24 40	Stone	29849.4	4.474936
265 09 44	85 11 57	Cape Henlopen LH	5134.7	3.710518
228 39 34	48 47 25	Cape May L.H.	24101.3	4.382040
279 48 03	99 51 15	Cape Henlopen LH	7517.3	3.876062
178 45 21	358 45 09	Brandywine Sh.LH	20748.9	4.316996
220 41 18	40 46 51	Cape May L.H.	19601.8	4.292296
218 43 32	38 48 47	Cape May L.H.	19347.2	4.286619
326 13 11	146 13 47	Cape Henlopen LH	2523.7	3.402038
216 40 43	36 45 59	Cape May L.H.	20304.8	4.307600
302 26 25	122 27 02	Cape Henlopen LH	1692.7	3.228587

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# POSITIONS.

*State*

	AZIMUTH. ° ' "	BACK AZIMUTH. ° ' "	TO STATIONS.	DISTANCE. Metres.	LOGARITHMS.

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# GEOGRAPHICAL

Locality Delaware Breakwater.

Approximately U.S. Standard Datum.

2-3747

STATIONS.	LATITUDE.	Seconds in Metres.	LONGITUDE.	Seconds in Metres.
Cape Henlopen, day beacon 1896 at end n.d.	38 47 28.27	871.7	75 05 09.41	227.1
Cape Henlopen Life Sav. Sta. 1882-96 n.d.	38 45 54.73	1687.6	75 04 49.62	1197.9

Do not write in this margin.

# POSITIONS.

State Delaware.

	AZIMUTH. " "	BACK AZIMUTH. " "	TO STATIONS.	DISTANCE. Metres.	LOGARITHMS.
	214 36 17	34 40 00	Cape May L.H.	19131.0	4.281738
C	353 45 49	173 45 53	Cape Henlopen LH	1448.5	3.160912
	167 29 45	347 29 36	Cape Henlopen LH	1479.6	3.170130
	209 07 44	29 12 14	Cape May L.H.	21331.2	4.329015

Do not write in this margin.

# GEOGRAPHICAL

*Locality*

2-3747

STATIONS.	LATITUDE. ° ' "	Seconds in Metres.	LONGITUDE. ° ' "	Seconds in Metres.	

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COPY

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

Washington

March 30, 1906.

The William Cramp & Sons  
Ship & Engine Building Co.,  
Philadelphia, Pa.

Gentlemen:

The officer detailed to locate the Speed Trial Course off Delaware Breakwater, in compliance with the request contained in your letter of March 6th, has completed his work.

The required data, in the form of a chart, has been forwarded to you by special delivery mail in a separate package.

All information necessary for your speed trials, including length of course, magnetic direction of course, and description of range marks will be found in notes on the face of the chart. The ranges are parallel.

A copy of this letter together with a chart of the Course has been sent by this same mail to Captain H. Osterhaus of the Board of Inspection and Survey, Navy Department.

Very respectfully,

O.H.Tittmann

Superintendent.