

2475

Diag. Cht. No. 77-2

U. S. COAST AND GEODETIC SURVEY.

Henry S. Pritchett, Superintendent.

State: *Md.*

DESCRIPTIVE REPORT.

Hydrographic Sheet No. *2475*

LOCALITY:

*Twenty fathom trial course,
Chesapeake Bay off Barren
Island*

1900.

CHIEF OF PARTY:

P. A. Welker & C. C. Yates

2475

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DESCRIPTIVE REPORT ACCOMPANYING HYDROGRAPHIC SHEET OF TWENTY
FATHOM TRIAL COURSE, CHESAPEAKE BAY OFF BARREN ISLAND, MARYLAND.

Chief of Party - Assistant P. A. Welker.

Report ^{written} by - Assistant C. C. Yates.

The trial course was laid off at the request of the Navy Department.

It was desired to have it an exact nautical mile in length and at no point in less than 20 fathoms of water.

Its location was selected by Assistant P. A. Welker, U. S. C. and G. Survey and ~~Commander~~ Commander C. E. Vreeland, U. S. Navy.

The soundings plotted on the sheet are chiefly from previous work of the Survey but sufficient soundings were obtained at the immediate location of the trial course by Assistant Welker to show that the required depth exists.

The shoreline on the sheet is the same as that of the Survey's charts with the exception of the full line on the west shore of Barren Island, where a sketch survey for the sheet was made with a plane table by Assistant W. W. Duffield. This shows, that this part of the Island has washed away over 370 metres (1214 feet), since the original survey of about fifty years ago, from which the shoreline of the Survey's chart was obtained. Therefore the chart shoreline must not be con-

founded with that of the sheet in locating the position of the beacons and tripods on the chart.

The triangulation was executed by Assistant C. C. Yates. It is based on the distance (9717.18 metres) between Cove Point Light and Cedar Point Light, which distance was obtained from a special adjustment by the Computing Division, of a portion of the Chesapeake Bay triangulation. The position of S. Tripod on Barren Island, as shown on the sheet, was so located that the line joining it and Cedar Point Light would form the range marking the south end of the trial course and be at right angles to its direction. The temporary position of N. Tripod was then located and after the triangulation was executed and computed, it was shifted to a permanent position such that a line running from it approximately parallel to the line S. Tripod - Cedar Point Light would intercept on the trial course an exact nautical mile (1853.23 metres or 6080.2 feet) from the latter line.

The permanent beacons were then erected on these ranges and their targets placed in position by the means of adjusted angles at N. Tripod and S. Tripod between the line joining them and their respective ranges. These angles are given on the face of the sheet and can be utilized at any future time

in relocating the beacons, if the present structures are carried away by ice or otherwise destroyed.

The triangulation stations N. Tripod and S. Tripod are marked by cedar posts 4 feet long and 8 inches in diameter projecting about 10 inches above the ground. The exact position is marked by the center nail of 4 copper nails arranged in the form of a triangle.

In case the ^{se} marks should be washed away or destroyed, secondary stations were established inland from the tripods, which can be used in their place. The location of these secondary stations can be obtained from the Description of Stations in the Archives of the Survey.

The notes in relation to tides and currents given on the face of the sheet were obtained by the Tidal Division from records of previous work by the Survey. These notes are referred to the tides at Baltimore, which is the nearest port for which daily predictions are given in the Tide Tables. If deemed desirable however, the difference in time of tides at Baltimore and Drum Point can be obtained from the Tide Tables and applied directly to the notes.

The buoys shown on the sheet, mark the ends of the trial course and are to be placed in the positions indicated by the Navy Department. The sextant angles necessary for their location are given on the face of the sheet.

The rear range marks (N. Tripod and S. Tripod) are tripod structures as their names indicate. They are about 24 feet high and show a boarded triangle face painted white, at right angles to direction of ranges. A pole projects about 9 feet above their apex, carrying a diamond 2 feet on a side, also painted white. These marks can be easily seen at all times from the trial course, when on or near range.

The front range marks (N. Beacon and S. Beacon) were erected under a contract by the firm of Sanborn and Brooks of Baltimore and were placed in position under the supervision of Assistant Yates. The beacons are heavy 8 feet square four pile structures with a fifth pile in the center. The piles are about 12 inches in diameter and were driven from 25 to 30 feet into the bottom. They are well braced and carry a platform and railing. The platform is 7 feet from the water and is surmounted by a well braced heavy center pole, carrying two targets, painted white. The lower target is of diamond form, 2 1/2 feet wide and 5 feet high, and its top is 10 feet from the platform. The upper target is of rectangular form, 2 1/2 wide and 5 feet high, and its top is 17 feet from the platform. The sides of the beacons seen from the trial course are at right angles to the direction of the range and are boarded from the platform to the rail. This part of the beacons is also

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painted white but the piles are not painted and remain their natural dark wood color

Although the main body of the beacons show clearly from the trial course at the probable elevation of the eye at the time of trial, the targets do not appear well defined to the unaided eye. A very low power field glass would make them very clear but as it is understood that even such glasses cannot be used on trial trips of torpedo boats on account of the vibration and spray, it may be shown later that a different form of target may be deemed desirable, if so, the base of the beacons are sufficiently strong to support any reasonable superstructure that may be designed. It is suggested that if the present targets are not found suitable that outriggers be run from the pile structure to carry braces to support a high pole with targets showing against a sky back ground, above the trees on Barren Island.

It so happens through the skill of the foreman of the pile driver, that the beacons are nearly centered. The center of the north beacon platform was only 1/4 inch too far north, and that of the south beacon only 1 inch out in the same direction. Therefore the main body of the beacons can be used as range marks in case of failure to see the targets at a

a critical moment. This could not be the cause of any great error, as can be readily understood when it is remembered that a 30 knot boat moves more than five feet in a tenth of one second.

Applied to Cht. Compilation 553

9-2-42

K.R.