

TMS Maritime is a leading UK specialist in marine civil engineering, ancillary floating plant and diving services

**Client:** BAM Nuttall

**Value:** £1.96m

**Project:** Boston Barrier Dredge & Scour Protection: 2019-2020

### **Description:**

In support of BAM Nuttall for the Boston flood protection barrier project, TMS were appointed to undertake dredging, scour protection and diving support. The work was undertaken in three phases over 24 months including:

#### **Phase 1 – Temporary By-pass Channel Scour Protection:**

Following installation of the barrier cofferdam and creation of a navigation by-pass channel, we installed over 3,000m<sup>2</sup> of articulating concrete mattress scour protection to the navigable channel riverbed. Mattresses were installed underwater by diver using a jack-up barge-based crane. Divers competed with fast flow and zero visibility conditions.

**Phase 2 – Dredging & Obstruction Removal:** Following Phase 1, approximately 18,000m<sup>3</sup> of riverbed material was dredged to a very fine tolerance in preparation for the following phase of scour protection. During the dredge operation, several historic timber river wall piles, steel and concrete jetty piles were encountered. These were removed using a combination of over-excavation, vibratory extraction and diver cutting.

**Phase 3 – Scour Protection Installation:** Following a short break while BAM installed the flood defence barrier, we returned to install the permanent articulating concrete block mattress scour protection. Mattress installation was preceded by installation of a graded rock formation material which was required to remediate soft and over-dug areas of riverbed (resulting from obstruction removal). This was laid over the full area and trimmed to a +/-75mm tolerance ready for receiving the concrete mattresses. A total of 6,642m<sup>2</sup> of mattresses were then laid by divers using a crawler crane aboard our 'TMS Searider' barge. To improve mattress performance, every mattress was connected on all edges to the adjacent mattresses and at all river edges, the mattresses were anchored using a combination of anchor blocks and driven steel pin anchors.

**Phase 4 – Cofferdam Removal:** On commissioning of the flood defence barrier by BAM, TMS were then appointed to remove the temporary cofferdam in which the barrier was constructed. Two dive teams completed over 450 linear metres of underwater thermic lance cutting to remove the steel sheet piled cofferdam and open the barrier to the River Witham. In zero visibility and difficult flow conditions, divers achieved a fantastic 2.5 linear meters per hour cut rate to allow subsequent operations to continue ahead of programme.

