



## Environment Overview and Scrutiny Committee

### Tuesday, 24 September 2019

<b>REPORT TITLE:</b>	<b>HILBRE ISLAND INCIDENT REPORT</b>
<b>REPORT OF:</b>	<b>DAVID ARMSTRONG, ASSISTANT CHIEF EXECUTIVE</b>

#### REPORT SUMMARY

In 2016 a report to assess the stability of existing sandstone walls and their likelihood of failure and other health and safety risks associated with maintenance of the walls on Hilbre was undertaken and from this several recommendations were made.

The option of infilling an island littoral opening (a cave formed primary by the wave action of the sea) below a section of the cliff face and restoring the dressed sandstone walling was taken and a project was initiated to undertake this work.

Work started in July 2019 to seal the island littoral opening. During the construction phase to rebuild the sandstone walls, the polyurethane foam product being used to give additional structural support to the cliff caught fire. Work ceased on the island following the fire and investigations were initiated. Safety measures were immediately put into place to secure the area.

The Committee is asked to discuss the options available to either protect the area from further erosion through construction methods or to allow a natural demise of sections of cliff. As this is a live incident Members will be updated on the findings of the investigations as they are gathered.

#### The report supports the Wirral Plan 20/20 pledges through:

- Attractive Local Environment
- Assets and Buildings are fit for purpose

**WARDS AFFECTED:** West Kirby

**THIS IS NOT A KEY DECISION**

## **RECOMMENDATION/S**

1. That the Committee be requested to note the report and to support the continuation of work with Agencies and the Friends of Hilbre Island Group following the fire on Hilbre Island
2. That the Committee asks the Cabinet Member to allow a full options appraisal to be undertaken for a range of actions to be considered based on previous reports and new inspections being conducted
3. That a Capital bid be produced to improve the listed properties on the island, including vacant properties to bring them back into use.

## **SUPPORTING INFORMATION**

### **1.0 REASON/S FOR RECOMMENDATION/S**

- 1.1 The recommendations made will continue to address the concerns raised in the 2016 report and deal with ongoing incident findings. By addressing the preservation needs of assets on the island this will provide a commitment to the special environmental interest of the island going forward.

### **2.0 OTHER OPTIONS CONSIDERED**

- 2.1 The 2016 report gave clear expert advice on the safety of Hilbre Island, these options were considered by officers in terms of priority order such as signage and cordoned areas, followed by more engineered projects to provide stability of the cliff and any island littoral openings which had formed.
- 2.2 To do nothing with the wall and island littoral opening would cause the defences to deteriorate and leave the cliff to function naturally thereafter.
- 2.3 Import rock to provide a buttress directly in front of the cliff, this would incur significant cost.
- 2.3 Filling and sealing of the island littoral entrance; the use of polyurethane foam was chosen over more traditional construction materials due to the vehicular access issues of the island, its structural properties and longevity of the repair.

### **3.0 BACKGROUND INFORMATION**

- 3.1 Hilbre Island is formed by natural outcropping bedrock that is subject to natural erosion. In the 1830's Mersey Dock and Harbour Company purchased the islands, during this ownership sections of the sandstone cliffs were reinforced with near vertical profile infills made up of sandstone blocks believed to have been constructed during the second half of the 19<sup>th</sup> century. It is thought that due to the importance of the buildings and equipment on the island, such works would protect these assets.
- 3.2 In 2016 Coastal Engineering UK Ltd were commissioned by Wirral Council, to undertake a detailed defence inspection and report, following a cliff collapse on a slipway which then triggered concerns about safety of cliffs. The report would address specifically: the stability of the existing walls and their likelihood of failure; the impact of this failure in inducing further cliff falls; and other health and safety risk associated with maintenance of the walls. The report is detailed and runs to 62 pages, and from which a series of options were given. In summary these were:
  - (i) Do nothing but allow the defences to continue to deteriorate and leave the cliffs to function naturally thereafter;

- (ii) Provide warning signs along the cliff top (minimum option);
  - (iii) Provide barriers along the cliff top to keep the public away from the danger area;
  - (iv) Filling and sealing the island littoral opening (and rebuilding the wall); or
  - (v) If greater budgets are available imported rock could be used to provide a buttress/revetment directly in front of the cliff to provide long term protection.
- 3.3 It is important to note that the areas of concern are not natural caves but a island littoral opening created following the failure of the main section of wall. A section of infill behind which an island littoral opening under the cliff has formed as material behind has been drawn out creating a void. This area was of particular risk highlighted by the report which if cliff integrity was compromised could cause potential injury to people or death.
- 3.4 There were several management options, the primary constraints were: tidal working, working in an environmentally sensitive area, access for plant and materials, sources of material and cost. Points (ii) and (iii) in the report were undertaken shortly after the publication of the report. Following discussions, advice in point (iv) was activated by way of seeking a Council Capital funding bid to release a budget to undertake the filling and sealing of the island littoral opening.
- 3.5 Asset Management were instructed in 2018 to deliver the project to rebuild the dressed stone wall at the base of the cliffs. As the structural stability of the wall was of paramount importance and the project was supported by the Council's Structural Engineer. At the point of project specification an additional structural dimension was added to prolong the life of the walls being constructed; the use of polyurethane foam which is used in many deep mining, highways and other civil engineering projects globally.
- 3.6 Phases of work were identified as follows:
- (i) Non-shrink grout use to underpin existing walls which were showing signs of scour
  - (ii) Infill of island littoral opening with structural expanding foam to reduce the load of existing perimeter of the walls
  - (iii) Rebuild section of perimeter sandstone wall to the island littoral opening entrance with stone facing
- Works commenced in July 2019, this being the best time for tides, weather and access to the island. The foam infill work started on 5/8/19 and was completed later that week. A storm hits Hilbre on 17/8/19 and a section of the infill was damaged. Grouting and wall construction starts on 19/8/19 and the damaged foam was replaced on 23/8/19.
- 3.7 On 23 August a fire breaks out in the island littoral opening and emergency services are called. The area is placed under the control of Merseyside Fire &

Rescue Services who initiate a fire investigation. Strictly no admittance to the cave.

- 3.8 Hilbre Island remained closed from 23 August until Saturday 26 August. Following an inspection of the fire damaged island littoral opening and adjacent cliff by Council Officers it was deemed safe for members of the public to access Hilbre Island but with the following precautions in place:
  - (i) Improve signage to cliff top, island littoral entrance and paths leading to Hilbre
  - (ii) Barriers and fencing installed to cliff tops to prevent access
  - (iii) Removal of all contractors' materials and equipment
  - (iv) RNLI communications with visitors asking them to follow safety notices
  - (v) Residual debris from the littoral opening is cleared by contractors as it is washed out by the tide
  - (vi) Daily inspections of the safety arrangements were put in place
- 3.9 The Fire Investigation report was received on 30/8/19 and stated that no evidence of deliberate ignition, initial findings appear to indicate that a build up of heat in the island littoral opening ignited the product being used and it not being able to readily escape, a chemical reaction during the curing process increased the heat until items in the cave ignited.
- 3.10 Investigation into the project methodology, product use and events leading up to the fire are still being undertaken.
- 3.11 A survey has been requested for a specialist company to re-assess the island littoral opening and cliff areas to ensure the overall stability of the cliff and opening have not worsened since the fire. This will be undertaken in the next couple of weeks and will support Members in their deliberations on the course of action to be taken.

#### **4 FINANCIAL IMPLICATIONS**

- 4.1 The cost of the project was estimated to be in the region of £85,000 and would be met by Council funding for Capital works. Additional costs will have been incurred following the incident; these have not yet been quantified.

#### **5.0 LEGAL IMPLICATIONS**

- 5.1 The consent of Natural England is required if operations in the Dee Estuary SSSI amount to modifications of natural features or repair of coast protection works including cliff stabilisation measures, or the construction of walls.
- 5.2 Under the Marine and Coastal Access Act 2009 a marine licence is required from the Marine Management Organisation if construction activities are carried out in English waters in or under the sea (defined as areas submerged at Mean High Water Spring Tides).

- 5.3 Discussions are taking place with Natural England and the Marine Management Organisation to determine whether the works carried out on Hilbre Island fall within the above definitions.

## **6.0 RESOURCE IMPLICATIONS: STAFFING, ICT AND ASSETS**

- 6.1 Existing internal staff resources have been directed to the investigation as a result of the incident.
- 6.2 Hilbre Island as a Council asset will require further consideration in terms of the safety and monitoring of the cliffs and sea defence walls.

## **7.0 RELEVANT RISKS**

- 7.1 The risks relating to the stability of the island are indicated in the 2016 report and relate to the safety risks to visitors to the island. The report assessed this a medium risk of defence failure spreading and risk of cliff failure due to on-going undermining/defence failure.
- 7.2 The location of the island poses challenges to all works being undertaken including vehicle access restrictions, weather, tidal working etc.
- 7.3 Risk assessments are essential when working in confined areas and where stability of the environment has been highlighted.

## **8.0 ENGAGEMENT/CONSULTATION**

- 8.1 The 2016 report was shared with the Hilbre Islands Management Advisory Committee.
- 8.2 Officers will consult and engage with Natural England and Marine Management Organisation following the incident.
- 8.3 Engagement has occurred with Merseyside Fire & Rescue Service, Environment Agency, Coastguard, RNLI and Friends of Hilbre Island.

## **9.0 EQUALITY IMPLICATIONS**

- 9.1 None

No because there is no relevance to equality.

## **10.0 ENVIRONMENT AND CLIMATE IMPLICATIONS**

- 10.1 There are environment implications associated with this report in respect of the location of Hilbre Island and the impact the environment has on the island rock structure.
- 10.2 Environment concerns following the fire and the use of Polyurethane foam have been raised and this will be considered by the Committee and using information gathered following investigations.

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## **BACKGROUND PAPERS**

1. Hilbre Island Defence Inspection and Report July 2016

## **SUBJECT HISTORY (last 3 years)**

<b>Council Meeting</b>	<b>Date</b>