CORK - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Youghal Lighthouse**
Other names used for site	
IGH THEME	**IGH10 Devonian**
TOWNLAND(S)	**Knockaverry**
NEAREST TOWN/VILLAGE	**Youghal**
SIX INCH MAP NUMBER	**67**
ITM CO-ORDINATES	**610840E 576760N (path to foreshore)**
1:50,000 O.S. SHEET NUMBER	**81** **GSI BEDROCK 1:100,000 SHEET NO.** **25**
GIS CODE	**CK089**

Outline Site Description
Outcrop along 400 m of foreshore below Youghal lighthouse.

Geological System/Age and Primary Rock Type
Upper Devonian sandstone and siltstone of the Ballytrasna Formation and overlying Gyleen Formation.

Main Geological or Geomorphological Interest
The foreshore to north and south of Youghal lighthouse contains extensive, clean outcrops of the Ballytrasna Formation and sandstone and siltstone of the overlying Gyleen Formation. The strata generally strike east-west and dip steeply south. Those exposed at this site form the southern limb of an anticline, with the Ballytrasna Formation at its core. Localized smaller-scale folding of the strata is apparent and a well-displayed syncline can be seen on the beach 50 m south of the lighthouse.

The Ballytrasna Formation represents the Upper Devonian terrestrial succession in central and east Cork. It comprises red and green sandstone and siltstone that were deposited from a network of rivers that flowed southwards from the landmass to the north. Towards the end of the Devonian period sea levels began to rise and the sea advanced northwards from the south. The uppermost Devonian rocks in Cork comprise grey, green and red sandstone and siltstone of the Gyleen Formation that were deposited on the coastal plain bordering the sea. At Youghal Lighthouse, as elsewhere in East Cork (e.g. Church Bay CGS), a thick, massive grey-green marine sandstone bed marks the start of the Gyleen Formation. The contact between it and the underlying red beds of the Ballytrasna Formation is uneven, the structures suggesting erosion of the latter by the advancing sea. Above the sandstone layer red siltstone recurs, indicating renewed river deposition before marine conditions became fully established in the succeeding Carboniferous Period. Carboniferous Waulsortian limestone is mapped as bedrock immediately south of the site, separated from the Gyleen Formation by a fault, but this is not exposed at this location.

Site Importance – County Geological Site
This site contains excellent exposures of the Ballytrasna Formation and the overlying Gyleen Formation, displaying the transition from terrestrial to marine conditions towards the end of the Devonian period. While these formations are also exposed at other locations in the East Cork region, this site has particularly easy access.

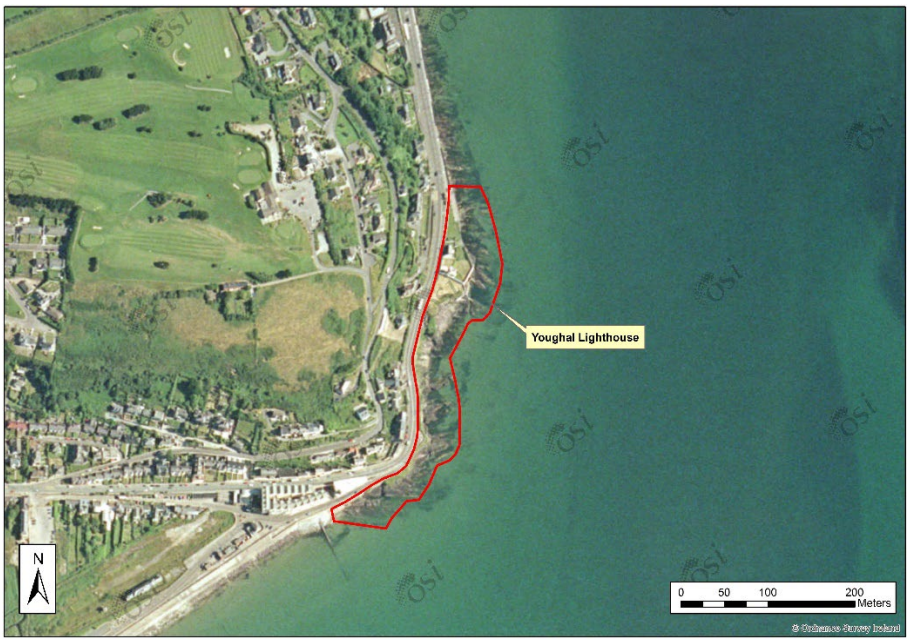
Management/promotion issues
The site is located on the foreshore below Youghal lighthouse. A path along the south wall of the lighthouse compound leads directly to a public bathing place and to the beach. The foreshore outcrops to the north and south of the lighthouse are accessible at low tide. Youghal Lighthouse is one of a number of sites in East Cork that illustrate the Devonian–Carboniferous geology of the region. It merits promotion, as part of a local or regional geological heritage trail.

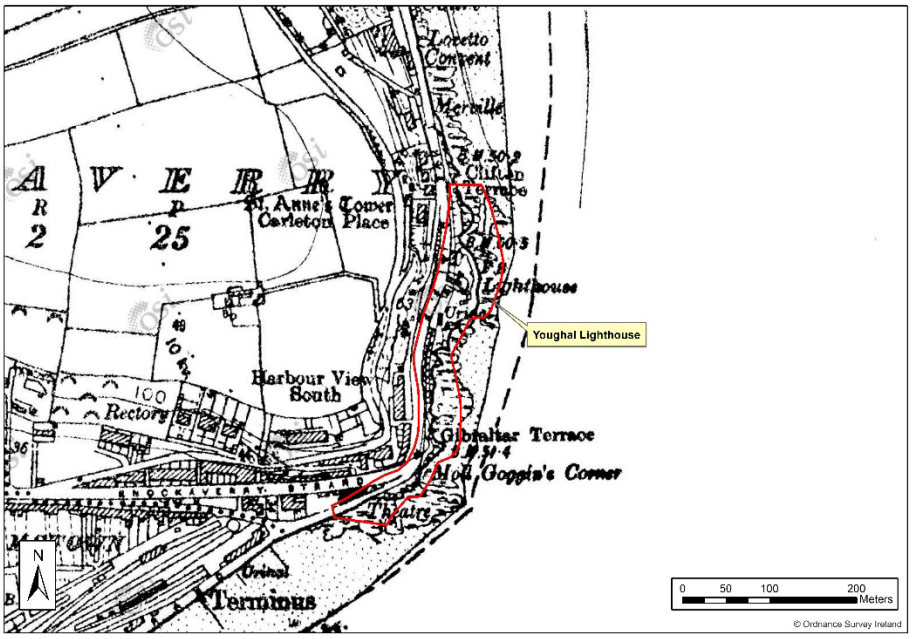
General view northwards across outcrop below Youghal Lighthouse.

Red and green sandstone and siltstone folded into syncline, c. 50 m south of lighthouse.

Close-up of thick bed of grey-green sandstone of Gyleen Formation in contact with red siltstone of Ballytrasna Formation.

Apparent contact between Ballytrasna Formation and overlying Gyleen Formation, marked by appearance of thick bed of grey-green sandstone (above hammer).





Hennessy et al., 2023. Geological Survey Ireland.