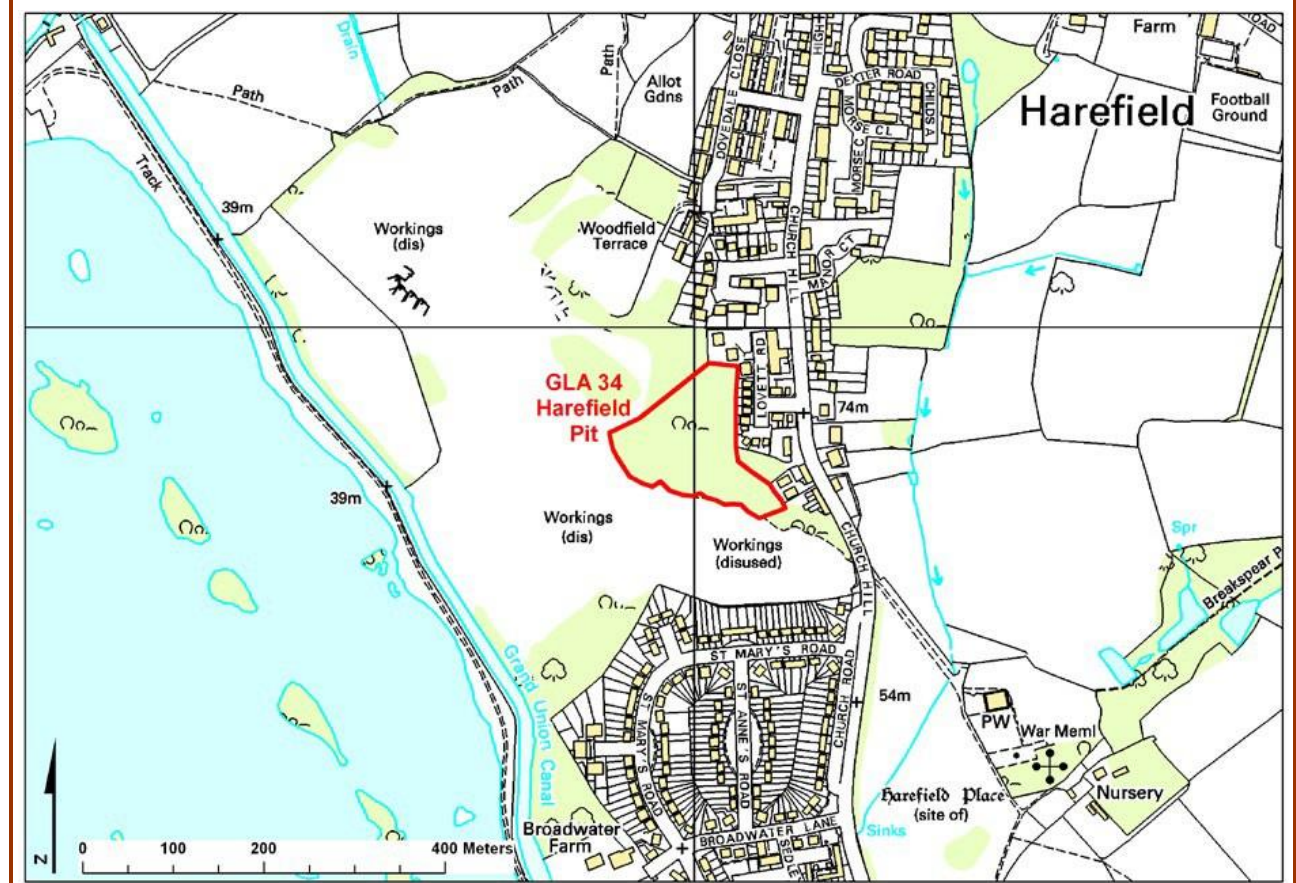


GLA 34 Harefield Pit

Grid Reference: TQ 049 898	Site Type: Land filled former quarry works
Site Area (hectares): 1.80	Current use: Fallow field, formerly dairy herd grazed
Site ownership: Private ownership, contact Natural England	Borough: London Borough of Hillingdon
Field surveyor: Information from Natural England Revisited: Allan Wheeler, Diana Clements, Laurie Baker, Steve Tracey and Lucy Flower (NE)	Date: October 2002 Date: January 2018 with further visit by NE in 2019
Current geological designation: SSSI Citation: 1001658.PDF (naturalengland.org.uk)	Other designation: Borough Grade I SINC (Harefield Chalk Pit)

Site Map OS Topography © Crown Copyright



Stratigraphy and Rock Types

Time Unit: Eocene	Rock Units: Harwich Formation, London Clay Formation (Thames Group)
Rock Type: sands and clays	Details: fossiliferous marine alternating sands and clays of both the Swanscombe Member and Tilehurst Member (of King, 1981) of the Harwich Formation. The Walton Member of the London Clay Formation overlies the Harwich Formation.
Time Unit: Paleocene-Eocene	Rock Unit: Lambeth Group (Upnor and Reading Formations)
Rock Type: sands and clays	Details: variable sands showing cross-stratification in places; nodular glauconite-covered flints at base.
Time Unit: Late Cretaceous	Rock Unit: White Chalk Subgroup, Chalk Group
Rock Type: Chalk	Details: Seaford Chalk with large flints near the top

Site Description

A key section in the London Basin for a sequence through the Upper Chalk, Upnor and Reading Formation, Harwich and London Clay Formations. It is also the only known site for calcareous charophytes in the Reading Formation. The site covers part of a disused chalk quarry which has been infilled leaving only the upper faces exposed. These display a superb Paleogene section including the contact between the Upper

Chalk and Upnor Formation, which has here been intensively bored by crustaceans to leave the trace fossil *Glyphichnus harefieldensis*. The faces also show a full section through the Reading Formation, up into mottled fluviatile clays of the Upper Reading Formation. These are overlain by sandy clays with a diverse marine fauna, comprising both the Swanscombe Member and the Tilehurst Member (of King, 1981) of the Harwich Formation for which this is the stratotype locality. Harefield Pit is additionally of particular interest as the only known source of

Charophytes in the Reading Formation. These are important palaeo-environmental indicators, and have potential for correlation with other coeval localities in Europe. An old description (Whitaker 1889) states that the overlying London Clay 'Basement Bed' has yielded plant material. This probably refers to Harwich Formation.

Assessment of Site Value

Geodiversity topic: Palaeontology, sedimentology and lithostratigraphy.

Access and Safety



Aspect	Description
Safety of access	Access via track from Church Hill (opposite sign to St. Mary's Church) and across private field to the base of the face (difficult to find when the grass and thistles are high). The top section of the exposure is also difficult to find through the wood at the top of the main section. Access from the gully on the north side is overgrown.
Safety of exposure	Collapse has occurred in one section.
Permission to visit	Permission to visit required via Natural England: ProtectedSites@naturalengland.org.uk
Current condition	Scrub grows up on part of site with brambles making access to geological sections difficult without regular clearance
Current conflicting activities	Access to site through private land and overgrown vegetation
Restricting conditions	Site becomes easily overgrown and access to the Harwich Formation and London Clay at the top of the section is difficult to access.
Nature of exposure	Infilled chalk quarry. Top of chalk quarry protected during landfill.

Culture, Heritage & Economic

Aspect	Description	Rating
Historic, archaeological & literary associations	One of the major Colne valley chalk quarries developed beside the Grand Union Canal to serve the 19 th Century building expansion of London.	
Aesthetic landscape	Good view across the Colne valley to proto-Thames terraces.	
History of Earth Sciences	Site is well documented, earliest reference 1864, throughout working life as a quarry and subsequently. A critical source of both palaeontological and stratigraphical information	7
Economic geology	Former chalk quarry local interest	4

GeoScientific Merit

Geomorphology	None.	
Sedimentology	Important locality for understanding the sedimentology of the Reading Formation and its relationship with the overlying Swanscombe & Tilehurst Members of the Harwich Formation and the London Clay Formation above that. Also exposed is the unconformable relationship with the underlying Late Cretaceous Chalk	8
Palaeontology	Only known locality to have yielded fossil charophytes (stoneworts) from the Reading Formation. – important environmental indicator and for comparison with similar aged sites across Europe. Interesting burrows of Upnor Formation into the top of the Chalk, originally described as <i>Terebella harefieldensis</i> (now <i>Glyphichnus harefieldensis</i>).	9
Igneous/mineral/ Metamorphic Geology	None.	

Structural Geology	None.	
Lithostratigraphy	Has been and remains a critical site in understanding Upnor and Reading Formation lithostratigraphy. Former type section of the Tilehurst Member of the Harwich Formation	8
Potential use	Research, higher education and potential for wider interpretation (subject to access arrangements)	
Fragility	Threatened by vegetation and build-up of scree	
Current Site Value		
Community	Access by permission only	2
Education	Restricted access but potentially an important field locality for university students. Keen local group interest. Included in GA Guide 68, Itinerary 1 (see references).	6
Geodiversity value		
SSSI: Of high scientific value for Tertiary palaeobotany and Tertiary stratigraphy		8
GLA 34 Harefield Pit		
		
<p style="text-align: center;">South end of the face prior to 2003</p>		
		
<p style="text-align: center;">The same face in January 2018. Photo: Diana Clements</p>		