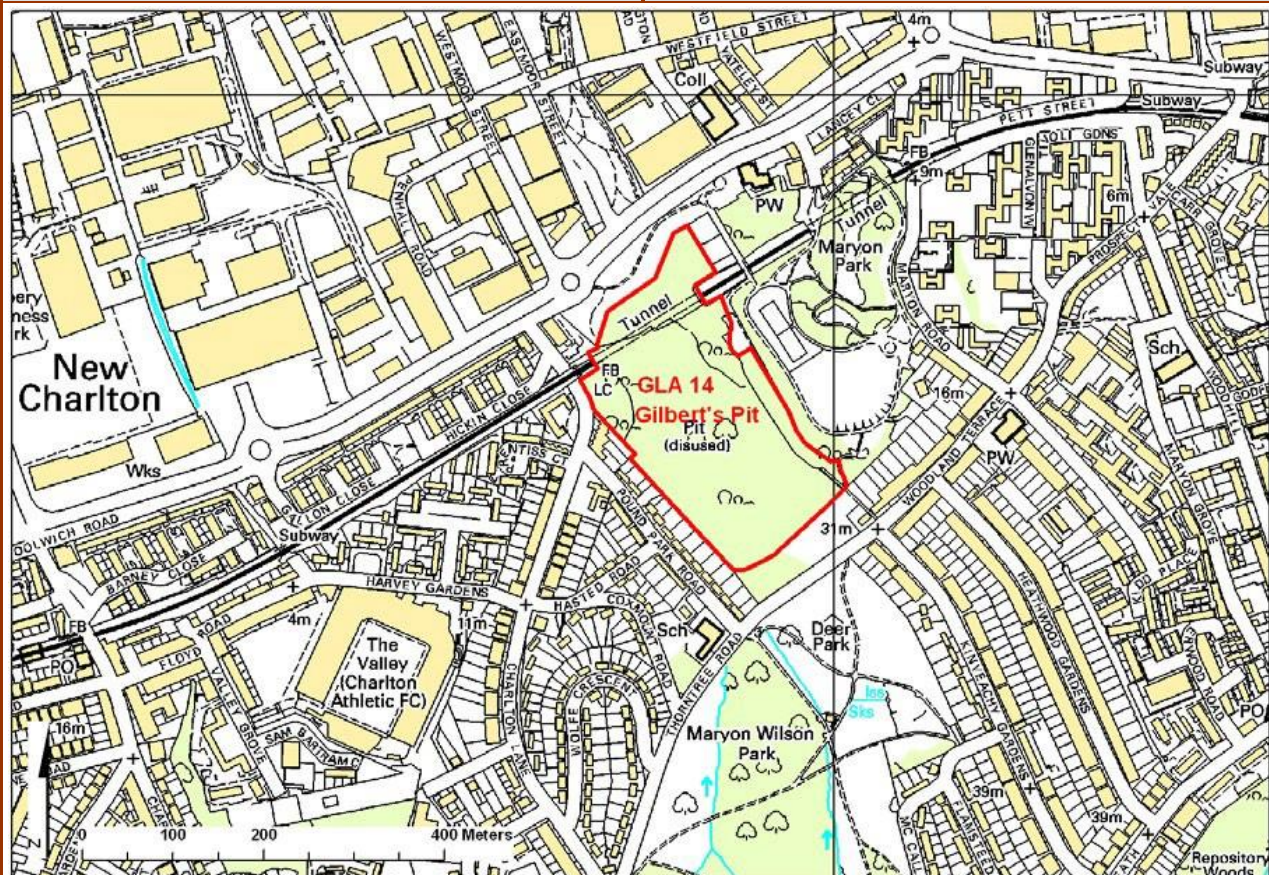


## GLA 14 Gilbert's Pit

Grid Reference: TQ 418 786	Site Type: Former quarry works
Site Area (hectares): 5.20	Current use: Fenced area within recreational land
Site ownership: London Borough of Greenwich	Borough: Royal Borough of Greenwich
Field surveyor: Joanna Brayson	Date: January 2008
Latest visit: Laurie Baker/Diana Clements	Date: December 2018
Current geological designation: SSSI	Other designation: Borough Grade I SINC (Maryon Park, Gilbert's Pit and Maryon Wilson Park)
Citation: <a href="#">1003340.PDF (naturalengland.org.uk)</a>	
<b>Site Map</b>	OS Topography © Crown Copyright



### Stratigraphy and Rock Types

Time Unit: Eocene	Rock Unit: Blackheath Member, Harwich Formation (per BGS); Blackheath Formation of Hooker (2010), Thames Group
Rock Type: Sand and gravel	Details: rounded Blackheath pebbles within sands; marine fauna, locally brackish.
Time Unit: Paleocene-Eocene	Rock Unit: Woolwich (Charlton Member of King, 2016), Reading and Upnor Formations, Lambeth Group
Rock Type: Sand and gravel	Details: Glauconitic marine sands of the Upnor Formation overlain by grey clays and sands with Brackish fauna and interleaved red and variegated clays and sands.
Time Unit: Paleocene	Rock Unit: Thanet Formation
Rock Type: Sand	Details: Glauconite-coated, nodular flint at base, overlain by pale yellow-brown, fine-grained sand that can be clayey and glauconitic. Visible on south face only.

### Site Description

Gilbert's Pit provides the most complete sections through Paleogene beds in the Greater London area. It forms a key Tertiary site for stratigraphic studies and is particularly important for a palaeogeographic reconstruction of the Woolwich and Reading and Upnor Formations as well as providing visual evidence of the strata beneath London for engineers working on projects beneath the Metropolis.

The site covers a disused pit cut into a sequence of Paleogene sediments dating from approximately 55 million years ago. Faces are present on the eastern and southern sides and rise to over 20 metres above the pit floor. A narrow causeway separates the eastern and southern exposures from an abutting face of a second pit at Maryon Park.

The faces formerly provided a sequence from the Chalk, through the overlying Thanet Formation and Woolwich Reading & Upnor Formations (Lambeth Group). Now only the Lambeth Group is visible on the east face where steps and a viewing platform have been erected. The capping of Blackheath Beds is best viewed from the ridge along the top. The south face reveals all the lithologies except the Chalk (which is covered by wartime rubble) but the Blackheath Beds are much reduced (lower level). Some of the beds are highly fossiliferous, yielding mollusc, rare fish, plant and reptile remains. Within the Woolwich Formation, the Woolwich Shell Bed (Charlton Member) in particular is noted for an abundant but very low-diversity brackish water molluscan fauna. The Woolwich Formation also includes the Striped Loams (Leaf-bed of Lewisham) where occasional plant material can be found.

The site has attracted scientific study for over 120 years and a substantial amount of literature has been published on the various geological features present. The fossil fauna has been described in particular detail.

### Assessment of Site Value


**Geodiversity topic:** Palaeontology; sedimentology; lithostratigraphy.

#### Access and Safety

Aspect	Description
Safety of access	Access to actual site is restricted by a fenced area but site can be viewed from footpaths adjacent to fenced off area or more closely by obtaining a key from the Park Rangers at Greenwich Council. Steps and a viewing platform have been erected up the east face which is the most accessible.
Safety of exposure	Exposure at the top of the quarry, along the ridge above the east face, dividing Gilbert's Pit from the adjacent Maryon Park is eroding rapidly and there is a danger that it will break through obscuring the exposed face and making access to the Blackheath Beds at the top more difficult. There are currently proposals to construct a bridge across the danger area. The south face is fenced off but with access can be reached; climbing the slope is dangerous with risk of failure of a large cavity in the Thanet sand.
Permission to visit	Entry is via gates to (a) steps to the east face, (b) to the slope on the south face (not advised) and (c) at north end of site for ridge along the top (to view Blackheath Beds). Access can be obtained from Park Rangers at Greenwich Council: <a href="mailto:parks@royalgreenwich.gov.uk">parks@royalgreenwich.gov.uk</a> or 020 8856 0100.
Current condition	Conserved on a regular basis but vegetation and slumping can obscure the faces of the pit if not maintained.
Current conflicting activities	Lack of maintenance; locked gates on fence.
Restricting conditions	Controlled access.
Nature of exposure	Old pit faces, fenced off, with information boards on both the east face and south face. Further details of the pit can be viewed on LGP website: <a href="http://www.londongeopartnership.org.uk/informationboardsandleaflets/#charlton">www.londongeopartnership.org.uk/informationboardsandleaflets/#charlton</a>

#### Culture, Heritage & Economic

Aspect	Description	Rating
Historic, archaeological & literary associations	Many	8
Aesthetic landscape	Highest point of site provides excellent view over much of Greater London. Also part of the Green-chain network of footpaths.	7
History of Earth Sciences	Environment of deposition.	6
Economic geology	Sand from the pit was used for glass making and for the Woolwich Arsenal. The pit is now viewed by engineers working on tunnelling projects under London.	5

<b>GeoScientific Merit</b>		
Geomorphology	None.	0
Sedimentology	Various formations – sedimentary environments. The variable nature of the beds can be compared in the two visible faces	8
Palaeontology	Highly fossiliferous beds containing brackish water fauna	8
Igneous/mineral/ Metamorphic Geology	None	0
Structural Geology	None	0
Lithostratigraphy	Succession of formations at one site.	8
Potential use	Research; further education; school education; on-site interpretation; an important training site for engineers tunnelling under London.	
Fragility	Natural overgrowing; geohazard; weathering/erosion.	
<b>Current Site Value</b>		
Community	Site passed by on a daily basis.	10
Education	Particularly important for engineers to learn about the variable nature of the Lambeth Group; part of the Green Chain Walk Geotrail – <a href="http://www.londongeopartnership.org.uk/geotrails">www.londongeopartnership.org.uk/geotrails</a> . Included in GA Guide 68, Itinerary 6 (see references).	8
<b>Geodiversity value</b>		
SSSI:	Excellent exposure of several lithologies with economic history. Information signs already present. Great potential for research and further site improvement allowing greater access to the top of the pit.	8
<b>GLA 14 Gilbert's Pit</b>		
		
East face showing details of the Woolwich and Reading Formations from the viewing platform		



Woolwich Fm.

Reading Fm.

Upnor Fm.

Thanet Sand Fm.

South face seen from the bottom of the slope with the beds superimposed on the lithology