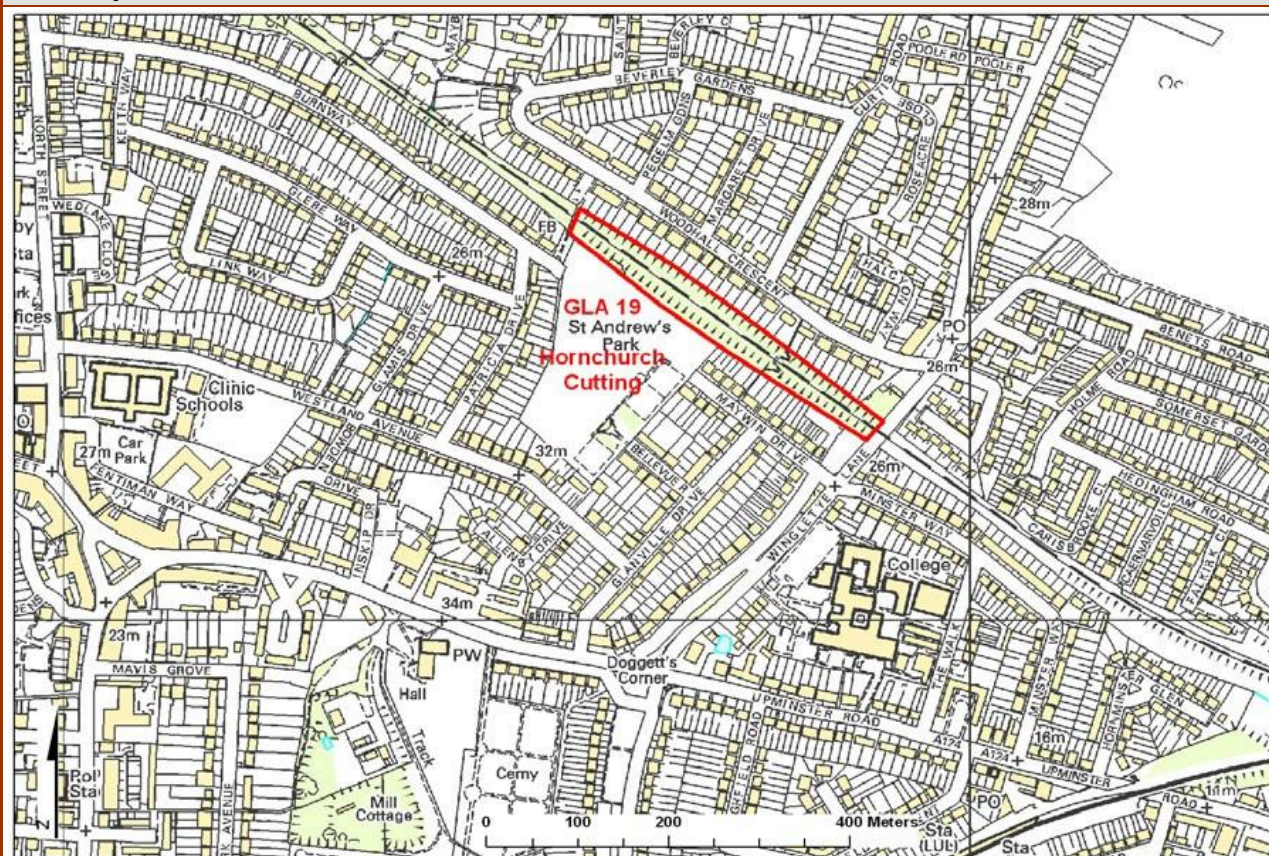


GLA 19 Hornchurch Cutting

Grid Reference: TQ 547 874	Site Type: Artificial section
Site Area (hectares): 1.57	Current use: In railway cutting next to live line.
Site ownership: Network Rail	Borough: London Borough of Havering
Field surveyor: Joanna Brayson	Date: January 2008
Latest visit: Peter Collins/Diana Clements	Date: October 2010
Current geological designation: SSSI	Other designation: Borough Grade II SINC (Romford to Upminster Railsides)
Citation: 1002354.PDF (naturalengland.org.uk)	

Site Map

OS Topography © Crown Copyright



Stratigraphy and Rock Types

Time Unit: Pleistocene	Rock Unit: Black Park Gravel Member, Thames Valley Formation (also described as Boyn Hill/Orsett Heath Gravel, Maidenhead Formation by Bridgland, 1994)
Rock Type: Sand and Gravel	Details: Sand and gravel, with possible lenses of silt, clay or peat. Matrix supported gravel with thin tabular cross-bedded sand channels. Gravel assemblage is characterised by abundant flint (75-89%), sparse rounded flint (3- 9%), sparse vein quartz (4-10%) and sparse quartzite (1-6%).
Time Unit: Pleistocene	Rock Unit: Lowestoft Formation, Albion Glacigenic Group
Rock Type: Till	Details: Chalky till, together with outwash sands and gravels, silts and clays. The till is characterised by its chalk and flint content.
Time Unit: Eocene	Rock Unit: London Clay Formation, Thames Group
Rock Type: Clay, silt, sand	Details: Fine, sandy, silty clay/clayey silt

Site Description

Hornchurch Cutting provides unique sections through a series of deposits which are of great stratigraphical importance for studies of the Pleistocene. In particular the site is of considerable significance for correlating the formation of the Thames terrace sequence with the glacial stratigraphy of Southern Britain.

The sections revealed by the cutting show a channel cut into the London Clay and infilled with a glacial till –

laid down at the southern extremity of the Anglian ice sheet. This till is overlain by the Black Park Gravel (the first post-diversionary terrace of the Thames). Hornchurch is the only area where glacial deposits are known to come into contact with the Lower Thames Terrace gravels. This relationship, first demonstrated when the railway cutting was excavated in the last century, indicates that the highest terrace in the Hornchurch area is more recent than the most extensive glaciation of Eastern England. The Hornchurch Cutting is thus clearly a site of prime stratigraphic and also historical importance.

Assessment of Site Value

Geodiversity topic: Lithostratigraphy; sedimentology; geomorphology.

Access and Safety

Aspect	Description
Safety of access	Access to site itself would require full railway safety procedures.
Safety of exposure	Access to site itself would require full railway safety procedures.
Permission to visit	Contact Network Rail via Natural England: ProtectedSites@naturalengland.org.uk .
Current condition	Maintained as part of railway network. Last opened up and investigated in 2010 following clearance of the slope of vegetation by Network Rail.
Current conflicting activities	Railway.
Restricting conditions	Next to operating railway.
Nature of exposure	Railway cutting.

Culture, Heritage & Economic

Aspect	Description	Rating
Historic, archaeological & literary associations	The site was discovered when the Romford to Upminster branch line was constructed through a ridge of gravel-capped land and was first described by T.V. Holmes in 1893 (Proceedings of the Geologists' Association, Vol 13, p.83). A section wasn't opened up again until nearly a century later when Colin Whiteman and David Bridgland began respectively to study till genesis and fluvial history in the area which gave insights into the processes.	8
Aesthetic landscape	None.	0
History of Earth Sciences	Cutting allowed timings of glaciations/river evolution to be suggested at an early time in investigations.	5
Economic geology	None.	0

GeoScientific Merit

Geomorphology	Relationship between till and overlying terrace gravels.	8
Sedimentology	Depositional environment and provenance of sediments.	7
Palaeontology	None.	0
Igneous / mineral / metamorphic geology	None.	0
Structural Geology	None.	0
Lithostratigraphy	Allows correlation of terrace gravels and till.	8
Potential use	Research.	
Fragility	Overgrowing.	

Current Site Value

Community	None.	0
Education	Not suitable for educational visits.	0

Geodiversity value

SSSI: Exposure of rarely seen boundary between tills and terrace gravels. Excellent site for research but very difficult access.	6
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GLA 19 Hornchurch Cutting

Hornchurch Railway Cutting when opened in 2010. Photo: Emily Dresner, Natural England