MARGAM HYDROGEOLOGICAL IMPACT ASSESSMENT

Margam Connection

BAKERHICKS PROJECT No.: 30004595

BAKERHICKS REFERENCE No.: MARPT-BHK-01-XX-RP-C-090007

NATIONAL GRID REFERENCE No.: 09_LOR_0084

REVISION: P03

Prepared for:

National Grid

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BakerHicks.

DOCUMENT VERIFICATION.

Project title:	Margam Connection
BakerHicks Project number:	30004595
Document title:	MARGAM HYDROGEOLOGICAL IMPACT ASSESSMENT
BakerHicks reference number:	MARPT-BHK-01-XX-RP-C-090007
National Grid reference number:	09_LOR_0084

Rev	Date				
P01	17/07/2025	**File name**	MARGAM HYDROGEOLOGICAL IMPACT ASSESSMENT		
		Description	S4 – For Stage Approval		
			Prepared by	**Checked by**	**Approved by**
		Name	SLR	CE	RC
		Date	17/07/2025	17/07/2025	17/07/2025
P02	13/08/2025	**File name**	MARGAM HYDROGEOLOGICAL IMPACT ASSESSMENT		
		Description	S4 – For Stage Approval		
			Prepared by	**Checked by**	**Approved by**
		Name	SLR	CE	RC
		Date	12/08/2025	13/08/2025	13/08/2025
P03	14/08/2025	**File name**	MARGAM HYDROGEOLOGICAL IMPACT ASSESSMENT		
		Description	S4 – For Stage Approval		
			Prepared by	**Checked by**	**Approved by**
		Name	SLR	CE	RC
		Date	13/08/2025	14/08/2025	14/08/2025

P01 - First Issue

P02 – Amended in accordance with National Grid/ Stantec comments

P03 – Appendix A revised with updated with red line boundary

Hydrogeological Impact Assessment

Proposed Extension to Margam Substation

BakerHicks Limited

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12 August 2025

Revision: 03

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	9 July 2025	CG	SM	SM
02	11 July 2025	CG	SM	SM
03	12 August 2025	JC	SM	SM
	Click to enter a date.			
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Basis of Report

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1.0 INTRODUCTION

SLR Consulting Ltd (SLR) has been appointed by BakerHicks Ltd (the client) to complete a hydrogeological impact assessment (HIA) for the proposed extension to the Margam Distribution Substation (the 'Site'). The extension will facilitate additional electrical supply and distribution capacity to TATA Steel's new Electric Arc Furnace (EAF) at the nearby TATA Steel Facility.

1.1 Project Overview

The proposed development comprises an extension to the existing Margam substation and installation of a new cable route comprising two high voltage circuits to run from the substation to the Port Talbot Steelworks.

The cable installation, including open cut trenching and Horizontal Directional Drilling (HDD), were assessed within a preliminary hydrogeological impact assessment completed by Envireau Water[1]. These items are not part of the proposed development and are therefore not assessed within this assessment.

The substation works include the following elements:

- Temporary works including haul roads, construction compounds and temporary drainage measures;
- Construction of the substation platform including temporary excavation, piling and land raise;
- The construction of the electricity substation and it's long term operation (permanent works)

To facilitate stability of the substation the substation will be constructed as follows:

- The site will be excavated to formation level at a depth of 1m below ground elevation (ground elevation +3.10mAOD, formation level +2.10mAOD);
- A piling mat installed to support piling of the to a depth of 0.28m below ground level (2.82mAOD), to consist of the following:
    - Geotextile Grid; overlain by
    - 0.36m thick piling mat; overlain by
    - 2nd geotextile grid; overlain by
    - 0.36m thick piling mat
- Piles drilled through the piling mat and underlying superficial deposits to bedrock;
- 300mm of piles removed followed by upper piling mat;
- A load transfer platform installed above the lower piling mat to ground level;
- Fill used to raise slab to development level of 4.15mAOD

A concrete floor will subsequently be installed onto the platform to facilitate the installation of the substation.

A plan exhibiting the layout of the Substation extension is presented in Appendix A.

[1] Envireau Water (25/04/25) *Preliminary Hydrogeological Impact Assessment*, Ref: 3491183 RSK Margam Cable \ RPT Preliminary Risk Assessment

1.2 Scope of Works

A Hydrogeological Impact Assessment (HIA) has been completed to assess the potential impact of the proposed development on hydrogeological and hydrological receptors.

A baseline review of the geology, hydrogeology and hydrology has initially been undertaken and used to develop a Conceptual Site Model (CSM). This CSM is subsequently used to identify where a hydraulic connection exists between the proposed development and identified groundwater receptors.

A hydrogeological impact assessment has been subsequently completed based on the proposed construction works and the developed CSM.

1.3 Methodology

This risk assessment has been developed in accordance with relevant Natural Resources Wales (NRW) guidance on completion of groundwater risk assessments[2] and Hydrogeological Impact Appraisals (HIA)[3] and includes the following stages:

- Section 2 provides a baseline assessment substation area. This includes a summary of the site geology and hydrogeology including information on ground conditions, groundwater levels and flows, groundwater quality and the location of potential receptors which could be impacted as a result of construction activities at the site. Finally, a CSM of the current hydrogeological regime is provided.
- Section 3 provides an assessment of the potential impact that the works could have upon the identified receptors and regional hydrogeology and hydrology. Appropriate mitigation measures and requirements for additional investigation and/or monitoring are outlined; and
- Section 4 provides a summary of the overall impact that the works could have upon the local hydrogeology and any identified receptors.

A qualitative risk assessment methodology has been used to assess the potential significance of impacts associated with the development works. Two factors are considered using this approach: the sensitivity of the receiving environment and the magnitude of any potential impact. This approach provides a mechanism for identifying where additional mitigation measures are potentially required to reduce the risk to groundwater receptors.

1.4 Policy Context

The following local and national policy and guidance has been followed for this assessment:

- UK Government, Groundwater risk assessment for your environmental permit - GOV.UK (www.gov.uk), published Feb 2016, updated April 2018.
- the Environment Agency's Groundwater Guidance on Groundwater Protection (https://www.gov.uk/government/collections/groundwater-protection);
- the Environment Agency's Hydrogeological Impact Appraisal for Dewatering Abstractions, Science Report – SC040020/SR1 Environment Agency, May 2007;
- EA and Defra's Pollution Prevention Guidance (PPG), accessed at: (https://www.gov.uk/guidance/pollution-prevention-for-businesses), last updated January 2024;

[2] Groundwater risk assessment for your environmental permit - GOV.UK (www.gov.uk), published Feb 2016, updated Apr 2018 [Accessed July 2025]

[3] Hydrogeological Impact Appraisal for Dewatering Abstractions, Science Report – SC040020/SR1 Environment Agency, May 2007

2.0 BASELINE CONDITIONS

The geological and hydrogeological regime at the substation site and the surrounding area is considered under the following headings: location and topography; geological setting; and hydrogeological setting, all of which have been used to develop a CSM. This provides an overview of the regional hydrogeology and is assessed further on a local scale, based on the location of identified infrastructure which could influence groundwater receptors.

2.1 Location and Topography

The site is located adjacent to the existing Margam Distribution Substation and is centred on the National Grid Reference (NGR) SS 78575 86379. The proposed site is approximately 1.73 ha. The nearest town is Port Talbot which is approximately 3.5 km northwest of the site.

To the east of the site, c. 165m, is a woodland area designated as a Restored Ancient Woodland. To the northwest of the site is the Port Talbot Steelworks.

The site is relatively flat, located in low-lying land on the periphery of the coastal flats. The site has little variation in the elevation, with the highest elevation in the west at around 3-4 m AOD, while the rest of the site is <= 3 m AOD. The land to the east of the site rises steeply to c. 220 m AOD.

2.2 Geology

2.2.1 Soils

The Cranfield Soilscapes[4] online soil map viewer indicates that the soils across the site are classified as *'Loamy and clayey soils of coastal flats with naturally high groundwater'*. The soils are naturally wet with a high water table.

2.2.2 Superficial Geology

Mapping on the British Geological Survey (BGS) GeoIndex[5] indicates that the superficial geology covering the entirety of the site is classified as Tidal Flat Deposits. These are described as:

> *'Tidal flat deposits, including mud flat and sand flat deposits, form extensive nearly horizontal marshy land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide.'*

The tidal flat deposits are underlain by glaciofluvial deposits, typically comprising of sands and gravels.

Ground investigations completed in September 2024 across the site included the completion of 20 trial pits between 1.20m and 3.0m below ground level (m BGL) and drilling of twelve boreholes to depths of between 12m and 50m BGL[6].

Relevant borehole logs are provided in Appendix B and confirm that the superficial deposits comprise of four disparate horizons, as follows:

- Tidal Flat deposits are recorded between 4.70m and 5.80m in thickness and comprise two horizons:

[4] https://www.landis.org.uk/soilscapes/

[5] GeoIndex - British Geological Survey

[6] BakerHicks (Feb 2025) *Ground Investigation Report: Margam Substation*

  - A clay horizon recorded between 0.6m and 4.5m in thickness and typically described as *'firm mottled greyish orange clay with occasional roots';* overlying
  - Peat recorded between 0.5m and 4.7m in thickness and typically described as described as *'spongy dark brown fibrous peat'*.
- Glaciofluvial deposits are recorded between 6.1m and 7.5m in thickness and comprises two horizons:
  - granular glacial deposits between 0.2m and 3.1m in thickness and typically described as a *'sandy Gravel';* overlying
  - cohesive glacial deposits between 0.5m and 6.3m thickness and typically described as a *'gravelly sandy clay'*.

Based on all of the data the base of the tidal flat deposits (clay and peat) ranged between -1.25mAOD and -5.56mAOD, indicating that all excavations associated with the substation construction and temporary works will be entirely within the Tidal Flat deposits.

It is noted that made ground was encountered within three trial pits (TP05, TP05A and TP05B) however these are all located close together and in an area of a proposed haul road where no earthworks are proposed. For the purpose of this HIA it is assumed that there is no made ground present across the Site.

2.2.3 Bedrock Geology

The BGS GeoIndex indicates that bedrock in the area comprises the South Wales Middle Coal Measures, lithologically described as *'Grey, (productive) coal-bearing mudstones/siltstones, with seatearths and minor sandstones.'*

These are underlain by the South Wales Lower Coal Measures Formation, similarly described *as 'Grey, (productive) coal-bearing mudstones/siltstones, with seatearths and minor sandstones.'.*

Available BGS logs surrounding the site indicate that the thickness of the south Wales Middle Coal Measures are estimated at approximately 10m to 20m with the Lower Coal Measures estimated at approximately 30m.

Ground investigations completed in September 2024, included the completion of 12 boreholes ranging from a depth of 12 m BGL and 50 m BGL. Borehole logs are included as Appendix 02. The borehole logs indicate that the Coal Measures were proven to thicknesses of up to 35.2m (noting that the base of the coal measures was not recorded in any boreholes).

In all boreholes the upper horizon of the coal measures was recorded as a weathered mudstone, typically described as an *"extremely weak grey MUDSTONE with occasional coal fragments".* Beneath the weathered mudstone the coal measures were described as interbedded mudstones and siltstones**.**

Based on the Site Investigation (SI) data, the geological conditions beneath the substation can be summarised as per Table 2-1.

Table 2-1: Geological Sequence within the Site Boundary

Formation	Description	Thickness (m)	Depth to top (m BGL)	Elevation to top (mAOD)
Topsoil / Made Ground	Dark brown slightly sands organic clay with occasional roots and rootlets High cobble content of concrete and slag	0.20 – 0.70	0.00	+2.95 to +3.15
Tidal Flat Deposits (Clay)	Soft blueish slightly sandy clay	0.60 – 4.50	0.20 – 0.70	+2.95 to +2.27
Tidal Flat Deposits (Peat)	Spongy dark brown fibrous peat	0.50 – 4.70	0.20 – 3.60	+2.75 to -0.45
Glacial Deposits (Granular)	Medium dense dark brown slightly sandy Gravel	0.20 – 3.10	4.70 – 5.80	-1.55 to -2.77
Glacial Deposits (Cohesive)	Firm brownish grey slightly sandy slightly gravelly clay	0.50 – 6.30	4.30 – 8.60	-1.25 to -5.56
Weathered Coal Measures Fm.	Weak grey mudstone with angular gravel	1.00 – 5.70	11.90 – 13.30	-8.83 to -10.26
Coal Measures Formation	Siltstone and mudstone with ironstone nodules, pyrite crystals and gypsum veins	35.20 +	14.30 – 18.80	-11.26 to -15.85

2.3 Hydrogeology

2.3.1 Recharge Mechanisms

The Met Office climate summary (1991 – 2020) for Mumbles Head (Location: 51.854, 1.283), found c.14 km north-west of the site are provided below in Table 2-2 and indicate relatively high rainfall of >1000mm per year.

Given the low permeability of the loamy soils and underlying clay dominant tidal flat deposits recharge to groundwater is likely to be low with the majority of rainfall forming surface water run-off the local drainage network.

Table 2-2: Met-Office Climate Averages for Mumbles Head (1991 – 2020)

Month	Rainfall (mm)
January	102.48
February	73.68
March	69.94
April	59.88
May	64.53
June	68.61
July	73.63
August	87.72
September	76.37
October	112.76
November	117.86
December	114.13
Annual	1021.59

2.3.2 Aquifer Classification

The aquifer characteristics and NRW aquifer designation of the strata along the length of the route are summarised in Table 2-3.

Table 2-3: Aquifer Designations

Deposit Type	Age	Formation	Aquifer Designation
Superficial	Quaternary	Tidal Flat Deposits	Secondary (undifferentiated)
		Glaciofluvial Deposits	Secondary A
Bedrock	Duckmantian Substage (CB) — Bolsovian Substage (CC)	South Wales Middle Coal Measures	Secondary A
		South Wales Lower Coal Measures	Secondary A

The various classifications are described by NRW as follows:

- *Principal Aquifer: layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.*
- *Secondary A Aquifer: permeable layers that can support local water supplies, and may form an important source of base flow to rivers.*
- *Secondary B Aquifer: lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin fissures and opening or eroded layers.*
- *Secondary (undifferentiated): where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.*
- *Unproductive Strata: strata that are largely unable to provide usable water supplies and are unlikely to have surface water and wetlands ecosystems dependent on them.*

2.3.3 Groundwater Levels and Flow

2.3.3.1 Groundwater Levels

The site investigation completed in September 2024 included the drilling of eight boreholes in the vicinity of the substation (BH105 – BH112) and four boreholes in the vicinity of the site compound to the north.

All boreholes recorded water strikes and rest water levels which were recorded both at strike and 20 minutes after the water strike. The available water strike data is summarised in Table 2-4.

Table 2-4: Water Levels Recorded Within On-Site Boreholes

Borehole	Strata	Water Strike Level		Resting Water Level*		Comments
		Depth (m BGL)	Level (mAOD)	Depth (m BGL)	Level (mAOD)	
Site Compound Boreholes						
BH101	Tidal Deposits (Clay)	1.0	2.36	0.80	2.56	Artesian
	Granular Glacial Deposits	4.0	-0.64	1.20	2.16	
	Coal Measures (siltstone)	18.0	-14.64	1.40	1.96	
BH102	Tidal Deposits (Peat)	1.20	1.75	0.70	2.20	
	Granular Glacial Deposits	6.20	-3.25	-0.41	3.36	Artesian
BH103	Tidal Deposits (Clay)	0.75	2.45	0.40	2.80	
	Granular Glacial Deposits	4.40	-1.20	-0.41	3.61	Artesian
BH104	Topsoil	0.20	-	0.00	-	
	Granular Glacial Deposits	11.80	-	7.50	-	
Substation Boreholes						
BH105	Topsoil	0.2	2.84	0.2	2.84	
BH105	Granular glacial deposits	5	-1.96	0.8	2.24	Sub Artesian
BH106	Topsoil	0	3.15	0	3.15	
BH106	Granular glacial deposits	4.7	-1.55	2.1	1.05	
BH107	Granular glacial deposits	5.4	-2.45	-0.46	3.41	Artesian
BH107	Coal Measures (siltstone)	21	-18.05	14.3	-11.35	
BH108	Granular glacial deposits	5.8	-2.75	-0.45	3.5	Artesian
BH109	Topsoil	0.1	2.94	0	3.04	
BH109	Granular glacial deposits	6	-2.96	-0.12	3.16	Artesian
BH110	Topsoil	0	3.07	0	3.07	
BH110	Granular glacial deposits	6	-2.93	1.9	1.17	
BH111	Topsoil	0	3.03	0	3.03	
BH111	Granular glacial deposits	5.8	-2.77	4.9	-1.87	Water standing on completion of excavation
Note: * water level recorded 20 minutes following water strike						

Water strikes were also recorded within a number of the trial pits with water strikes typically at a shallow depth either within the topsoil or within the underlying Peat. The available data is summarised in Table 2-5.

Table 2-5: Water Levels Recorded Within Trial Pits

Trial Pit ID	Depth (m BGL)	Level (mAOD)
TP105A	0.7	2.965
TP105B	0.65	2.965
TP108	1.65	1.36
TP109	1.45	1.59
TP110	2.6	0.46
TP111	2.3	0.76
TP112	0.7	2.27
TP113	1.6	1.48
TP114	1.2	1.95

Groundwater has since been monitored on six occasions in borehole BH111, this was screened across the peat horizon and monitoring confirms that the water table was at surface in all monitoring rounds, a summary is presented in Table 2-6.

Table 2-6: Groundwater Level Monitoring Data – BH111

Borehole	Depth to Base (m BGL)	Depth of water (m BGL)	Groundwater elevation (mAOD)
BH111	4.50	0.00	3.03

The boreholes and trial pits show that the groundwater across the site is very shallow and, in some cases artesian, meaning only one borehole has been able to be monitored. The other boreholes with artesian conditions have been sealed to prevent groundwater from flowing to the surface.

The available data indicates that within all boreholes groundwater was struck at the horizon between the peat deposits and underlying granular glacial deposits with the groundwater level rising to artesian (above ground level) or sub-artesian conditions, indicating that the granular deposits are being confined by the overlying low permeability clay and peat. Water strikes were also recorded at or very close to surface within a number of boreholes, however this is likely to be reflective of saturated soils due to limited drainage through the underlying tidal flat deposits.

Due to the artesian nature of the water strikes it is not possible to confirm groundwater flow direction, however groundwater flow is assumed to follow the local topography in a predominantly westerly or south-westerly direction towards the coast.

2.3.3.2 Aquifer Parameters

During the site investigation, rising / falling head permeability testing was conducted on one borehole (BH108) at 6.00 m BGL within the granular glacial deposits. The test result showed a permeability of 9.52 x 10^{-4}m/s, confirming the moderately high permeability of the strata.

Triaxial permeability tests were also performed on samples collected from the near surface cohesive tidal flat deposits, granular glaciofluvial deposits and cohesive glaciofluvial deposits, the testing indicates the following ranges of permeability:

- Cohesive tidal flat deposits: $1.10x10^{-10}$ to $1.80x10^{-10}$m/s (3 tests)
- Granular glaciofluvial deposits: $1.80x10^{-4}$ to $4.2x10^{-3}$m/s (3 tests)
- Cohesive glaciofluvial deposits: $7.70x10^{-11}$ to $3.6x10^{-10}$m/s (3 tests)

The hydraulic properties of peat can be highly variable depending on the age, degree of decomposition and presence of other minerals, such as clay, within the matrix. Hydraulic conductivities typically range between $1x10^{-5}$ to $1x10^{-8}$m/s. It is noted that in many of the logs the peat layer is often described as an *"organic clay with pockets of organic material"* or *"fibrous peat with many pockets of brownish grey organic clay"*. The peat is also characterised by generally having a very high total porosity (often exceeding 80%) but significantly lower effective porosity which can significantly reduce the velocity of groundwater flow through the peat and create a dual-porosity structure with groundwater flow primarily within more interconnected larger pore space within the peat structure. Given the descriptions of the peat as having a high clay content and the potential impact of compression from the overlying tidal clay's both hydraulic conductivity and porosity are likely to be towards the lower end of literature values.

The BGS indicates that the bulk permeability of the South Wales Coal Measures is usually low, less than 1m/d, however it will be highly variable and dependent on the nature of the sequence with groundwater flow primarily within any more permeable sandstone or siltstone horizons. It is noted that within all the SI boreholes the coal measures was dominated by low permeability mudstone, with only one borehole (BH107) recording a water strike within the coal measures, within a siltstone horizon at a depth of 21m below ground level.

The available aquifer parameter data confirms that the bulk of groundwater flow will be within the granular glaciofluvial deposits with the overlying and underlying clays associated with the tidal flat and glaciofluvial deposits both exhibiting very low permeabilities, confirming that there will be minimal groundwater flow within these horizons.

2.3.4 Groundwater Abstractions and Source Protection Zones

The NRW mapping website indicates that the site is not located in a Source Protection Zone (SPZ) and there are no SPZs within a 2km radius of the Site.

2.3.5 Licenced Abstractions

There are 2 licenced abstractions recorded within a 2 km radius of the site. The boreholes target the groundwater within the superficial deposits (assumed to be from the glaciofluvial deposits) and are located approximately 680m to the south / south-east of the substation. Based on an expected groundwater flow towards the coast in a westerly or south-westerly direction, these boreholes are considered to be cross-gradient of the Site.

2.3.6 Hydrology

The site lies within the Afon Cynffig catchment area and includes two watercourses, the Ty Du Brook and the Afon Cynffig.

The higher ground to the east is drained by the Nant Cwm Philip, Nant Cwncaetreharn and Nant Ffwdwyllt. Nant Ffrwdwyllt flows through Port Talbot to the Swansea Bay 2.5km to the north. The Nant Cwmcaetreharn is a tributary of the Nant Cwm Philip which drains south to Margam Duck Pond 1.77km east of the Site. The Nant Cwm Philip then continues to flow south through the pond where it confluences with the Afon Cynffig 3.85km to the south of the Site before finally discharging into the Swansea Bay 3.7km southwest.

The low-lying land in the vicinity of the proposed substation between the elevated railway line to the west and higher ground to the east is drained by a network of ditches to the central 'Upper Mother Ditch' 80m to the east of the substation extension. The ditch drains through a culvert beneath the railway line before passing through a large Sluice Structure 320m to the northwest (NGR: SS 78299 86666). The Structure is comprised of a series of flow controls before leading to a culvert beneath the TATA Steel Facility (the "TATA Upper Mother Outlet").

It is anticipated that the TATA Upper Mother Outlet discharges into Swansea Bay or is routed through a large reservoir on the western side of the facility, which then drains into the bay. The outfall to the sea is protected by a tide flap.

The Eglwys Nunydd Reservoir is located in the southern end of the low-laying land circa.1.0km south of the Site. It receives flow from the Nant Cwm Philip via a sluice-controlled brook and drains to the network of ditches.

Based on the geological and hydrogeological conditions discussed above groundwater baseflow to this network is considered to be low due to the low permeability of both the soils and upper superficial tidal flat deposits which will significantly limit infiltration and ensure that the majority of incidental rainfall forms surface water run-off.

2.3.7 Groundwater Dependent Ecological Sites

A review of NRW mapping indicates that there are 2 water dependent sites within a 2 km radius of the site:

- Margam Moors – a freshwater habitat bounded by dunes to the west and raised embankment of the railway line to the east, located approximately 1.37km to the south-west of the site at its closest point;
- The Eglwys Nunydd Reservoir – a reservoir constructed to provide cooling water for the steelworks and is fed by surface water drainage. It is understood that the reservoir is concrete lined and therefore not groundwater fed. The reservoir is located approximately 0.71km to the south / south-east at its closest point.

The site itself is classified as a site of importance for nature conservation, the *'Junction 38 wetland complex'* which is described as a *"cohesive wetland site comprised of wet woodland, reed beds, ditches and marsh grassland"* with noted presence of species including water vole, otter, grass snake, common lizard, reed bunting and Cetti's Warbler.

3.0 CONCEPTUAL SITE MODEL

The assessment of the baseline conditions of the substation site and associated temporary works indicates that the development site is underlain by superficial geology comprising tidal flat deposits overlying glaciofluvial deposits to a depth of between 11.9m and 13.3m below ground level. These superficials are underlain by the Coal Measures bedrock which have been proven to a depth of 50m below ground level.

The September 2024 SI confirmed that the superficial deposits comprise four disparate horizons, with the tidal flat deposits comprising clays (0.6 – 4.5m thick) overlying peat (0.5 – 4.7m thick) and the underlying glaciofluvial deposits comprising a granular sand and gravel deposit (0.2 – 3.1m thick) and cohesive clay dominated deposit (0.5 – 6.3m thick). The bedrock is dominated by mudstone with subordinate siltstone and occasional coal.

Groundwater strike data from the SI indicates that the primary aquifer was encountered within the granular glaciofluvial deposits where groundwater is being confined by the lower permeability overlying peat and clays. Given the artesian nature of the groundwater it is not possible to determine groundwater flow direction, however it is likely to follow the local topography in a broadly westerly or south-westerly direction towards the coast. Groundwater recharge to the glaciofiluvial aquifer will occur on higher ground to the east where the deposits outcrop and flow beneath the development site.

The overlying peat horizon is likely to be saturated due to upwelling of groundwater from the underlying glaciofluvial aquifer, however given the high clay content and potential impacts of compression from the overlying clay deposits at surface groundwater flow within the peat itself it likely to be limited.

The presence of clay at surface indicates that the wetland habitats present across the site and within the Margam Moors SSSI are primarily being fed by surface water run-off due to impeded drainage as opposed to groundwater baseflow, although given the limited thickness of the clay in places some groundwater input cannot be ruled out.

The localised drainage network is also considered to be primarily within the loam soils and clay superficials and therefore will also receive limited groundwater baseflow.

There are two licenced abstractions present approximately 680m to the south of the Site which are likely to be sourced from the glaciofluvial deposits and could theoretically be impacted by any significant dewatering required or from impacts on groundwater flow pathways, although it is noted that these are located cross gradient and a significant distance from the proposed works.

Whilst the coal measures bedrock is classified as a Secondary A aquifer the SI indicates that the upper strata is dominated by low permeability mudstone with a significant water strike only recorded within one borehole beneath the substation site, within a siltstone horizon some 20m below ground level, there is therefore considered to be no hydraulic connection between the superficial and bedrock aquifers.

4.0 HYDROGEOLOGICAL IMPACT ASSESSMENT

4.1 Proposed Development

As outlined within Section 1.1 the areas of development which required assessment include:

- Construction of the substation platform including temporary excavation, piling and land raise;
- Long-term use of the substation;
- Temporary works including haul roads, construction compounds and temporary drainage measures

4.2 Risk Assessment

4.2.1 Potential Effects

Without appropriate design and controls, construction of the works has the potential to impair the hydrogeological quality as well as levels and flows, such as:

- Existing groundwater flow paths could be disturbed or altered, impacting on nearby groundwater abstractions or groundwater fed ecological sites;
- The use of machinery and the movement of soils has the potential to generate suspended solids in run-off and/or introduce oils or hydrocarbons to the water environment;
- The use of piling has the potential to create preferential pathways for contamination or alter groundwater flow pathways;

As outlined within Section 2 and 3 of this report the significant hydrogeological receptors are considered to be groundwater flow within the granular glaciofluvial deposits, which in turn maintain saturated conditions in the overlying peat. Whilst the available data suggests that the Junction 38 wetland complex is not fed by groundwater it is noted that if the near surface clay is absent in any locations then there is the potential that groundwater could locally feed the ecological site which has been included in the assessment as a worst case.

4.2.2 Embedded Mitigation

Best practice construction techniques and procedures will be undertaken and appropriate management plans developed in the form of a Construction Environment Management Plan (CEMP), which will include details on:

- Pollution Prevention;
- Soil Management;
- Emergency Response Procedures; and
- Temporary Site Drainage.

All environmental management practices associated with the construction phase shall be controlled by the CEMP, and will also be undertaken in accordance with good practice guidance as outlined within the following documents:

- CIRIA SP156, Control of Water Pollution from Construction Sites - Guide to Good Practice, 2002;
- CIRIA C649D, Control of water pollution from linear construction projects. Site guide, CIRIA 2006;

- CIRIA C753, The SuDS Manual, December 2015, and
- CIRIA C502, Environmental Good Practice on Site C741, CIRIA 2015.

The Guidance for Pollution Prevention (GPPs), provide environmental regulatory guidance for Wales and relevant GPPs will be followed where appropriate, including:

- GPP01: Understanding your environmental responsibilities – good environmental practices (June 2021);
- GPP02: Above Ground Oil Storage Tanks (June 2021);
- GPP03: Use and design of oil separators in surface water drainage systems (March 2022);
- GPP04: Treatment and Disposal of wastewater where there is no connection to the public sewer (June 2021);
- GPP05: Works and maintenance in or near water (Feb. 2018);
- GPP06: Working at construction and demolition sites (Apr. 2023);
- GPP08: Safe storage and disposal of used oils (June 2021);
- GPP13: Vehicle Washing and Cleansing (June 2021);
- GPP20: Dewatering underground ducts and chambers (June 2021);
- GPP21: Pollution incident response planning (June 2021); and
- GPP22: Dealing with Spills (Oct. 2018).

4.2.3 Dewatering Requirements

4.2.3.1 Construction Compound and Access Road

The construction activities for the temporary works associated with the substation construction (construction compounds and haul road) will include only shallow earth works (soil stripping). Borehole logs for boreholes and trial pits in the vicinity of the site compound indicates that the near surface ground conditions comprise c.0.3m clayey topsoils overlying between 0.5m and 3.8m of sandy clay.

Whilst water strikes were recorded within the soils in a number of locations these are considered to reflect standing water due to impeded drainage into the underlying clays, therefore whilst minor seepages are possible to any excavation required these are unlikely to be significant and will likely be managed locally.

4.2.3.2 Substation

The construction of the substation platform will require excavation to a depth of approximately 1m below ground level (2.10mAOD) to create the platform for piling. A review of the geological logs indicate that the excavations will be almost entirely within the near surface clay horizon, the base of which is recorded at between 1.27mAOD and 2.05mAOD across the substation site.

In all boreholes the clay was underlain by peat. The top of the granular fluvioglacial deposits (considered the primary aquifer within the superficials) is recorded at between -1.25mAOD and -3.73mAOD, some 3.35m to 5.83m below the base of the proposed excavation.

Given that the shallow deposits are described as a sandy clay ground flow is likely to be limited (as demonstrated by the low permeability from testing), and whilst there is the potential for minor seepages, a significant groundwater inflow is highly unlikely. Any minor

dewatering required will therefore be able to be managed locally through pumping to the local drainage system.

If any part of the excavation extends into the underlying peat there is the potential for some groundwater upwelling from the underlying granular glaciofluvial deposits, however vertical permeabilities within the peat are typically low and the presence of significant clay within the peat horizons will limit the rate of any groundwater upwelling and therefore significant groundwater inflows are not anticipated.

4.2.4 Impact Assessment

4.2.4.1 Impacts on Groundwater Levels and Flows

Construction Phase

As outlined within Section 4.2.3 the temporary works will only require relatively shallow excavations which will be entirely within low permeability clay strata which can be classified as unproductive strata and is unlikely to provide either baseflow to watercourses or viable water supplies. The temporary excavations will be well above the granular glaciofluvial deposits which is the primary superficial aquifer pathway, the impact of this aquifer can therefore be assessed as **negligible**.

Based on the information currently available it is not anticipated that the substation excavation will extend below the shallow clay horizon overlying the peat. It is noted that in places the base of the excavation will be less than 5cm from the top of the peat, therefore there is the potential for the top of the peat to be exposed in places, however this is highly unlikely to require significant dewatering of the peat. As a worst case there is the potential for a **minor adverse** impact but this would be temporary and given the peat is recharged from the underlying granular glaciofluvial deposits would quickly recharge.

Operational Phase

The substation platform will be constructed on piles which will be extended through the superficial deposits to the Coal Measures bedrock. These could create a very localised impact on groundwater flow within the granular glaciofluvial deposits, however given the high permeability of these deposits, as confirmed by the site investigation, groundwater flow will readily be routed around the piles with only a very localised and very minor impact on groundwater levels or flows. Given the lack of any close receptors the overall impact can be assessed as **negligible.**

It is understood that the flood wall to be constructed around the perimeter of the site will potentially extend through the peat and granular glaciofluvial deposits to minimise the potential inflows to the excavation during construction of the substation and for the long term stability of the flood wall, this would be achieved through the use of sheet piling (exact depths and construction method to be confirmed).

The barrier effect created by the placement of sheet piling across has the potential to affect groundwater levels up-gradient and down-gradient of the Site by raising groundwater levels immediately up-gradient and potentially reducing groundwater levels down-gradient, however given the high permeability of the sands and gravels groundwater flow will be readily routed around the site and ultimately groundwater flow down-gradient of the Site will not be significantly affected. As outlined in the CSM, the groundwater is not considered to be providing significant baseflow to the ecological features on site and any reduction in groundwater levels down-gradient would be observed beneath the existing substation, railway line or the steelworks site and therefore the impact would be negligible. Up-gradient of the site the groundwater is confined by the overlying low permeability clays and a slight rise in groundwater levels would not impact on any receptors as the water table is already

artesian. The proposed piling will therefore result in a ***'minor negative'*** impact on groundwater levels but given the lack of receptors to be impacted the overall significance of the impact is assessed as **'negligible'**.

4.2.4.2 Impacts on Groundwater / Peat Recharge

The substation will include a concrete platform with surface water run-off routed to surface water. As outlined within the CSM recharge to the peat and granular glaciofluvial deposits across the site is currently considered to be very low due to the low permeability of soils and clay overlying the peat. The peat is therefore maintained wet primarily through groundwater upwelling from the underlying granular glaciofluvial deposits which are recharged from the higher ground to the east of the Site. The amount of recharge which occurs across the site will therefore be largely unchanged from current situation and there will therefore be a **'negligible'** impact on recharge.

4.2.4.3 Impacts on Licenced Abstractions

Given that any dewatering required will be from low permeability clays or some minor upwelling from the peat the potential radius of influence from any dewatering required will be negligible and there will be no feasible impact on either of the abstractions identified.

4.2.4.4 Impacts on Groundwater Quality

Construction works

The construction works required will inevitably give rise to suspended solids which if not managed could pollute surface waters and groundwaters. The construction works will also involve the use of mobile plant which could give rise to fuel spills which could potentially contaminate surface waters and groundwaters.

The construction works will be undertaken in accordance with the management plans and guidance outlined in Section 4.2.2 which provide details of how construction will be completed in an environmentally safe manner and minimise the potential for spillages.

Given the low permeability of the near surface horizons the groundwater vulnerability is low and in the event of a spillage the most viable pathway for pollutants will be to surface water rather than groundwater.

Best practice techniques will be incorporated within the management procedures for construction activities onsite to protect the water environment from pollution incidents. This guidance will be outlined within the site-specific CEMP which will guide environmental management during the construction phase of the project. Key mitigation measures can be summarised as follows:

- during operation there will be heavy machinery required onsite and, as a result, it is appropriate to adopt best working practices and measures to protect the water environment, including those set out in the Guidance for Pollution Prevention (GPP1);
- in accordance with GPP2 all above ground onsite fuel and chemical storage will be bunded;
- an emergency spill response kit will be maintained onsite;
- a vehicle management system will be put in place wherever necessary to reduce the potential conflicts between vehicles and thereby reduce the risk of collision;
- a speed limit will be imposed on site to reduce the likelihood and significance of any collisions;

Given the embedded mitigation in place, the potential risk during construction to groundwater quality assessed as **'negligible'** to **'minor negative'**.

The SI report indicates that there is no evidence of near surface contamination within the area where piling is proposed, therefore the potential for piling to mobilise contaminants in the soil or to provide preferential pathways for contamination is assessed a **negligible**.

Operational

During the operation phase the primary risk to groundwater will be from any oils or lubricants used / stored within the substation, however as all run-off will be collected and routed to the surface water drainage network with no discharge to ground the potential impact on groundwater quality is assessed as **negligible**. The risk to the surface water environment is assessed within the surface water management plan for the Site (reference MARPT-BHK-01-XX-RP-C-090001/09_LOR_0016).

4.2.4.5 Impacts on Ecological Sites

As outlined within the CSM the *Junction 38 wetland complex* is considered to be fed by localised surface watercourses and saturated soil conditions due to the low permeability of the underlying strata which will limit infiltration to ground, resulting in saturated conditions.

Whilst some minor baseflow from groundwater cannot be ruled out where the clay is thin,given that any excavations required will be shallow and significant dewatering of the aquifer is not proposed the potential impact on the junction 38 wetland complex from changes to groundwater levels, flows or quality is assessed as **negligible**.

4.3 Mitigation

The above assessment indicates that based on the developed CSM and the embedded mitigation included into the design and working of the site there is no requirement for additional mitigation.

4.3.1 Permitting

Based on the developed CSM it is likely that some minor dewatering will be required to support the construction of the platform for the substation, however given that the excavation will be almost entirely within low permeability clay the potential groundwater inflows through the sidewalls of the pit will be negligible, however there is the potential for some groundwater upwelling through the base if the underlying peat is exposed.

It is therefore anticipated that dewatering rates will likely remain below the licencing limit ($20m^3$/day). In the event that the abstraction rate exceeds $20m^3$/day the abstraction would comply with the '*water abstraction and impounding (exemptions) regulations 2017)'* regulations which allow for the abstraction of up to $100m^3$/day where discharging to a watercourse or at an unlimited rate where discharging back to ground for a period of up to 6 months.

Given the high water table any dewatering water would likely be discharged to surface water, this will be undertaken in accordance with the EA's regulatory position statement for *temporary dewatering from excavations to surface water'* (RPS 261).

In the highly unlikely event that either the dewatering volumes or timeframes exceed those outlined above then an abstraction licence and surface water discharge permit would be obtained prior to commencement of works.

5.0 SUMMARY AND CONCLUSIONS

A Hydrogeological Impact Assessment (HIA) has been undertaken to assess the potential impact of the proposed extension to the Margam Substation on the local and regional hydrogeology.

A conceptual site model (CSM) for the temporary and permanent works has been developed and confirms that the primary groundwater pathway is a granular horizon within the glaciofluvial deposits which underlie the site. This groundwater is being confined by low permeability clays of the Tidal deposits present at surface. The potentiometric head of the glaciofluvial deposits are artesian indicating that these will maintain saturated conditions within the peat at the base of the tidal deposits, however due to the presence of the low permeability clay at surface across the site and much of the area down-gradient of the Site this aquifer is not considered to provide significant groundwater baseflow to either the ecological sites or local drainage network which will be almost entirely fed by surface water run-off.

A qualitative impact assessment has been undertaken and confirms that subject to incorporation of appropriate best practice and the measures the potential risk to the identified groundwater receptors is assessed as negligible, with any minor impacts associated with the construction considered to be temporary and reversible once construction is completed.

Appendix A Layout of Substation Extension

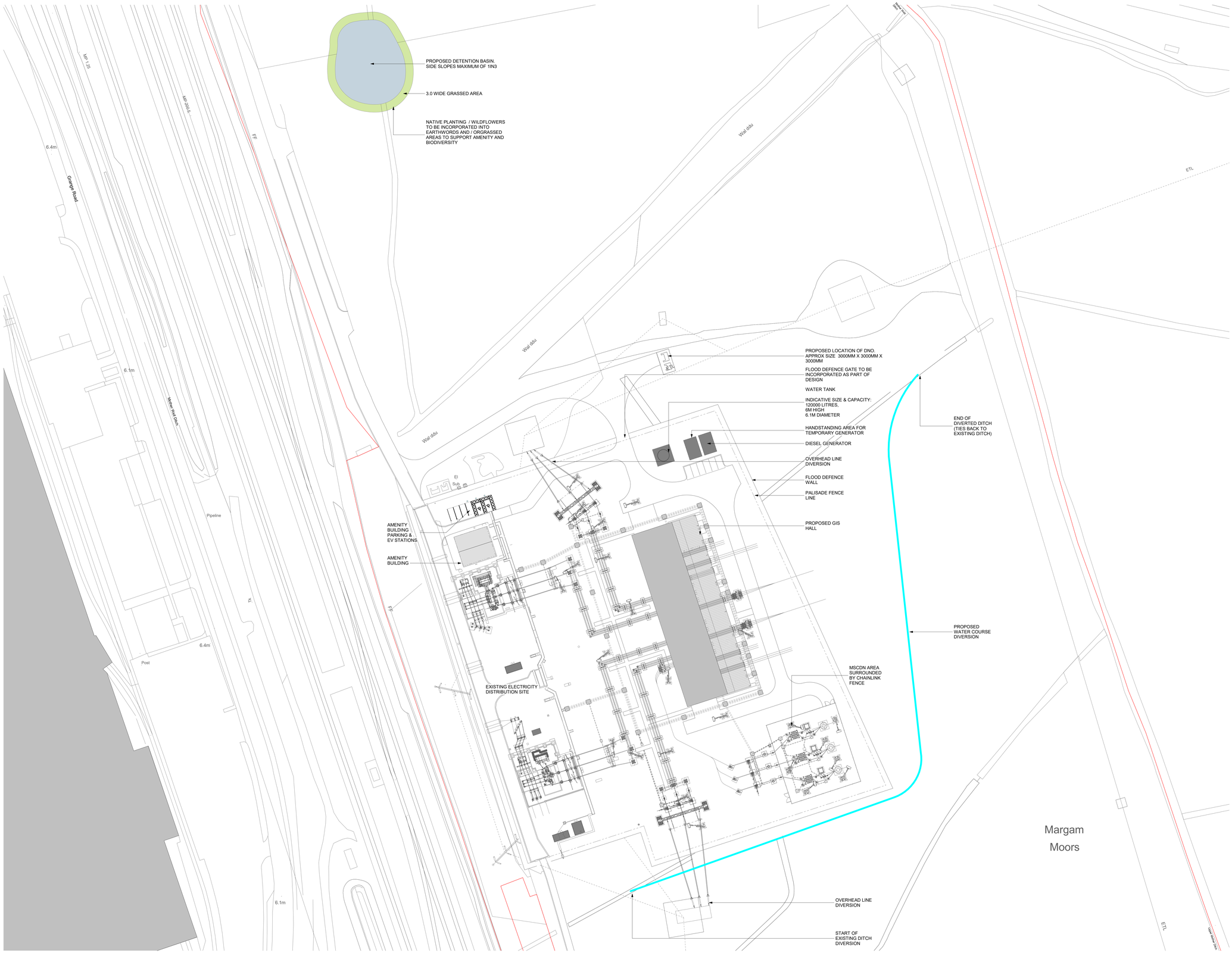
Hydrogeological Impact Assessment

Proposed Extension to Margam Substation

BakerHicks Limited

SLR Project No.: 402.065496.00001

12 August 2025



1 Margam Site Plan - Proposed
Scale: 1 : 500

SCALE 1:500 (5 0 5 10 15 20 25 m)

For Planning

GENERAL NOTES

ALL BAKERHICKS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS, THE RELEVANT BAKERHICKS SPECIFICATIONS AND ALL RELEVANT ARCHITECTS AND SERVICE ENGINEER'S DRAWINGS AND SPECIFICATION.

ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM.

ALL DIMENSIONS ARE IN MILLIMETRES (U.N.O)

DO NOT SCALE ANY ENGINEERING DRAWINGS OR DIGITAL DATA. IF IN DOUBT ASK. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO ENGINEER BEFORE WORK IS PUT TO HAND.

THE CONTRACTOR MUST ADVISE THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND/OR SITE CONDITIONS / DIMENSIONS AT THE EARLIEST POSSIBLE OPPORTUNITY.

REVISION NOTES ARE FOR GUIDANCE ONLY. FOR SPECIFIC DETAILS, REFER TO CLOUDED AREA ON DRAWINGS FOR MOST RECENT AMENDMENTS.

ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR OR HIS SUBCONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.

ALL WORK HAS TO BE CARRIED OUT WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.

ALL METHOD STATEMENTS SHOULD BE SUBMITTED TO THE ARCHITECT / CDM PRINCIPAL DESIGNER AND ENGINEER FOR REVIEW AT LEAST TWO WEEKS BEFORE CARRYING OUT THE SAID WORKS.

ALL PROPRIETARY PRODUCTS TO BE AS SPECIFIED OR EQUAL APPROVED.

KEYPLAN

SITE KEY

SITE BOUNDARY

SITE AREA: (154648.052 m2) (15.46 Hectares) (38.20 Acres)

BUILDINGS

PROPOSED WATERCOURSE DIVERSION

NOTE:

DRAWING TO BE PRINTED IN COLOUR

REFER TO PEAT MANAGEMENT STRATEGY FOR AREAS OF PEAT BURIAL LOCATIONS

P05	S3 For Review and Comment: Planning drawings updated following feedback with NPT on 24/07/25	MY	OTr / PC	29/07/25
P04	S3 - For Review & Comment. Updated Proposed Site Layout following Planning Consultant Feedback	OTr	OT/RC	30/06/25
P03	Issued for planning, comments incorporated following client feedback	GP	OTr / RC	24/04/25
P02	Issued For Planning	DSB	OTr / RW	10/02/25
P01	First Issue	DSB	RW / JK	03/02/25
Rev.	Description	Cre'd	Chk'd / Appr'd	Date

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
101677		MARGAM

Scheme Name: Margam Substation

Document Title: Margam GIS Hall - Proposed Site Plan

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
DSB	30/01/25	RW	30/01/25	JK	30/01/25

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
	DWG	1 : 500	A0		P05

National Grid Document Number: 13_LOR_0066

MARPT-BHK-01-ZZ-DG-A-130023

Appendix B Borehole Logs

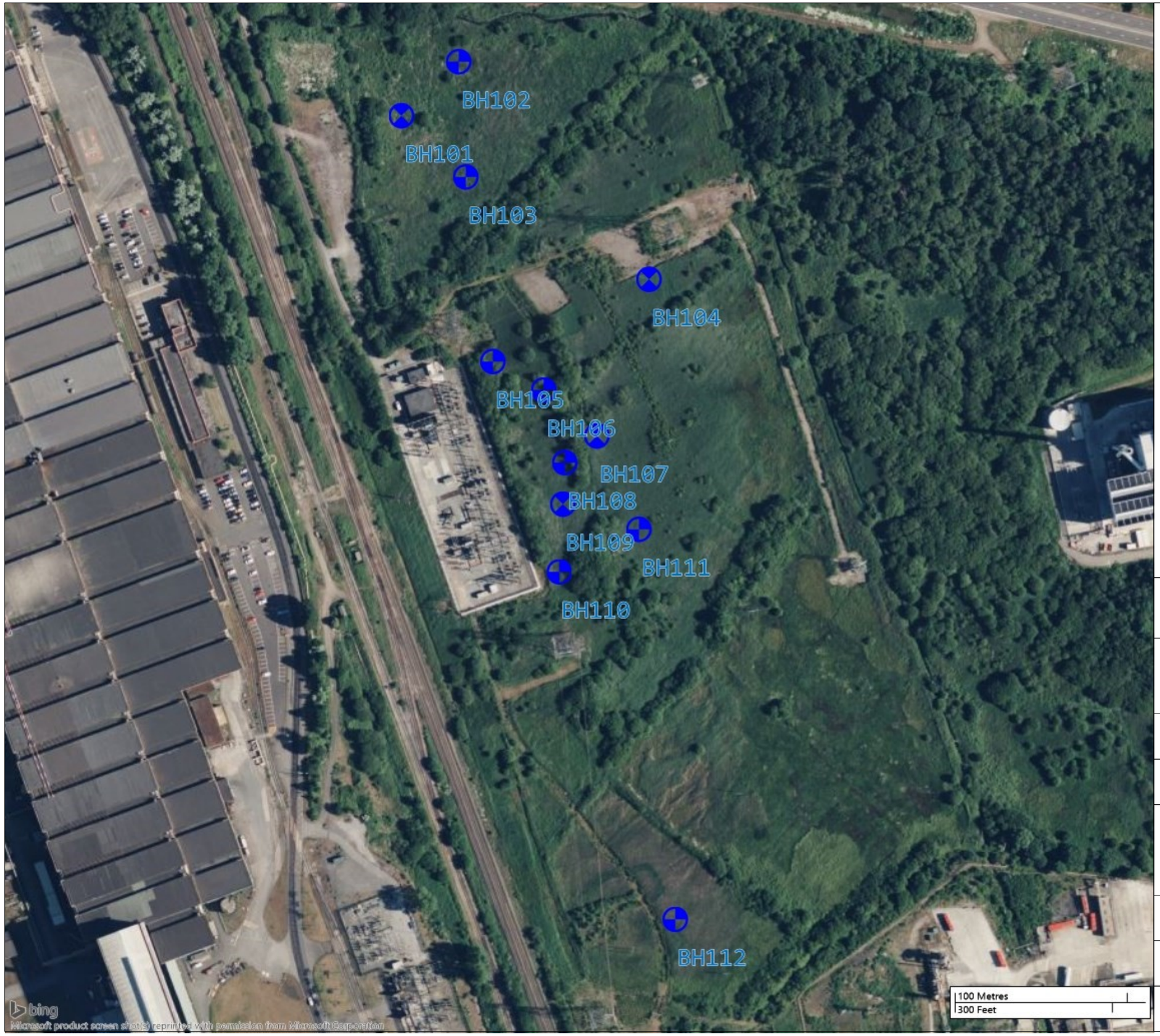
Hydrogeological Impact Assessment

Proposed Extension to Margam Substation

BakerHicks Limited

SLR Project No.: 402.065496.00001

12 August 2025



N

Legend

- Locations By Type - CP
- Locations By Type - CP+RC

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Engineer:
Baker Hicks

Client:
National Grid

Project:
National Grid - 101677 Margam TATA Steel Connection

Drawing Title:
Exploratory Hole Location Plan

Scale:	Date:
1:2200 at A3	**17/10/2024**
Project No.: **PC248745 - Phase 1**	**Exploratory Hole Location Plan**

DATA SHEET - Symbols and Abbreviations used on Records

Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecone Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content

(All other strengths from undrained triaxial testing)

S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/- (mm)	Total blows/penetration
( )	Extrapolated value

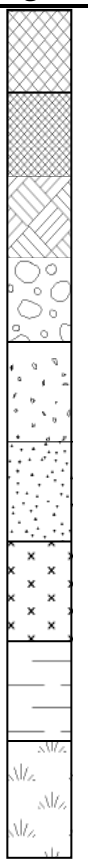
Groundwater

Water Strike

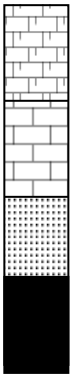
Depth Water Rose To

Instrumentation

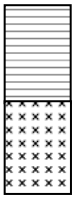
Strata



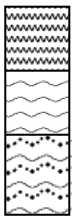
Note: Composite soil types shown by combined symbols



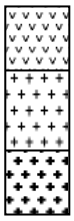
Strata, Continued



Metamorphic Rock



Igneous Rock



Backfill Materials

Rotary Core

RQD	Rock Quality Designation (% of intact core >100mm)
FRACTURE INDEX	Fractures/metre
NI	Non-intact core
NR	No core recovery
AZCL	Assumed zone of core loss

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BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378492.7 E 186568.4 N	**Borehole**	BH101
				Ground Level	3.36 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over soft dark brown slightly sandy clay with occasional rootlets and roots up to 8mm in diameter.			
0.20	D					0.30		3.06
0.25	ES				Soft grey mottled brown slightly sandy CLAY with occasional roots up to 10mm in diameter.			
0.25			PID: <0.1 ppm					
0.25	HV		30/32/31 kPa		Below 0.50m, roots absent.			
0.40 - 0.80	B							
0.50	D		w: 24 %					
0.50	ES					1.20		2.16
0.50			PID: <0.1 ppm		Very soft grey slightly sandy CLAY with occasional pockets (up to 10mm in size) of organic material.			
0.60	HV		39/40/38 kPa					
1.00	D							
1.00	ES							
1.00			PID: <0.1 ppm					
1.20 - 1.65		1.20 (0.80)		S0*/ 450mm				
1.20 - 1.65	D							
1.20 - 2.20	B							
1.80	D		w: 77 %					
2.20 - 2.65	UT	2.20 (DRY)	6 blows cu: 16 kPa					
2.20 - 2.65								
2.50 - 3.20	B							
2.65 - 2.80	D							
3.00	D		w: 80 %					
3.20 - 3.65		3.20 (DRY)		S1				
3.20 - 3.65	D					3.80		-0.44
3.80 - 4.20	B				Very dense dark brown sandy GRAVEL with a low cobble content of subrounded sandstone. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.			
4.00	D							
4.20 - 4.34		4.20 (1.20)		C50/ 70mm				
4.20 - 5.20	B							
5.00	D							
5.20 - 5.65		5.20 (-0.14)		C38	At 5.20m, dense.			
5.20 - 6.00	B							
6.10	D							
6.30 - 6.64		6.20 (0.00)		C50/ 190mm				
6.30 - 7.00	B							
6.80	D							
7.10 - 7.44		7.00 (0.00)		C50/ 190mm				
7.10 - 8.00	B							
7.50	D							
8.00 - 8.37		8.00 (0.00)		C50/ 220mm				
8.00 - 8.80	B							
8.60	D							
9.10 - 9.55		9.10 (0.00)		C39	At 9.10m, dense.			
9.10 - 10.00	B							
9.80	D							
10.00 - 10.45		10.00 (0.00)		C42				

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/SS
14.70	0.20	Cable Percussion	MR/SS
15.00	0.12	Rotary Open Hole	CJ/IJ
25.00	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			12/08/24	08:00
7.00	7.00	0.00	12/08/24	18:00
7.00	7.00	0.00	13/08/24	08:00
14.85	14.70	11.10	13/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.00		0.80	20		Artesian
4.00	4.00	1.20	20		
5.20	5.20	-0.14	30		
18.00	15.00	1.40	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
Chiselling: 6.50-6.70m for 30 minutes & 8.50-8.80m for 40 minutes.
Artesian water noted at 5.20mbgl.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
At 14.50m, water level rose to 0.49m in 10mins. Rotary casing installed. Flush:Air/Mist

Logged by SI

Figure Sheet 1 of 4
05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378492.7 E 186568.4 N	**Borehole**	BH101
				Ground Level	3.36 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.20 - 11.50	B				Very stiff dark brown and dark grey slightly sandy slightly gravelly CLAY with a low cobble content of subangular sandstone. Gravel is angular to subangular fine to coarse sandstone.	10.20		-6.84
11.00	D		w: 16 %					
11.50 - 11.95		11.50 (10.40)		S41				
11.50 - 11.95	D							
12.10 - 13.50	B				Extremely weak brownish grey MUDSTONE, possibly interbedded and extremely weak SANDSTONE,	12.10		-8.74
13.00	D							
13.50 - 13.84		12.00 (11.20)		S50/ 190mm	Extremely weak grey MUDSTONE, recovered as clayey gravel.	13.60		-10.24
13.50 - 13.84	D							
13.60 - 14.50	B							
14.00	D							
14.60	D				Extremely weak black COAL.	14.50		-11.14
14.70 - 14.85		12.00 (11.10)		S50/ 75mm	***Borehole continued using alternative techniques - see next page***			
14.70 - 14.85	D							

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				14.85	14.70	-0.70	27/08/24	08:00						
				22.50	15.00	1.10	27/08/24	17:00						
				22.50	15.00	0.00	28/08/24	08:00						
				25.00	15.00		28/08/24	16:40						

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378492.7 E 186568.4 N	**Borehole**	BH101
				Ground Level	3.36 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
							Borehole continued using rotary drilling techniques - see below				
							Extremely weak black COAL.		14.85		-11.49
		15.00 - 16.50	15.00	80 33	10	AZCL NI 2 NI 9 NI NI NI	Very weak and weak light grey MUDSTONE with occasional plant fossils up to 5mm diameter. Discontinuities are subhorizontal (0-10 degrees), very closely and closely spaced, stepped, rough and clean.	Between 15.00m - 15.30m. assumed zone of core loss. Between 15.30m - 15.50m, non-intact, recovered as angular to subangular fine to coarse gravel of very strong light grey sandstone, quartzite and coal. Between 15.50m - 15.70m, with numerous plant fossils. Between 15.70m - 15.92m, 16.15m - 16.28m and 16.35m - 16.50m, non-intact, recovered as angular and subangular fine to coarse gravel.			
16.28 - 16.40	C										
		16.50 - 18.00	15.00	100 93	13	9	Medium strong grey SILTSTONE with occasional very strong sandstone layers. Discontinuities are subhorizontal (0-15 degrees), very closely and closely spaced, stepped, rough and clean.	Between 16.90m - 17.00m. very strong sandstone layer.	16.90		-13.54
16.90 - 16.99	C										
		18.00 - 19.50	15.00	97 60	47	NI	Strong to very strong dark grey SILTSTONE with gypsum veins up to (2mm thick). Discontinuities are generally inclined at (15 degrees), very closely and closely spaced, plannar, stepped, smooth and clean	Between 17.90m - 18.22m. very strong sandstone with occasional gypsum and pyrite veins up to (1mm thick) with discontinuities subhorizontal, stepped and rough. Between 18.22m - 18.36m. non-intact recovered as angular to subangular fine to coarse gravel.	18.36		-15.00
18.81 - 18.91	C					8		Between 19.62m - 19.72m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 19.76m - 19.90m. very strong sandstone layer.			
		19.50 - 21.00	15.00	99 87	60	NI					

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/SS
14.70	0.20	Cable Percussion	MR/SS
15.00	0.12	Rotary Open Hole	CJ/IJ
25.00	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			12/08/24	08:00
7.00	7.00	0.00	12/08/24	18:00
7.00	7.00	0.00	13/08/24	08:00
14.85	14.70	11.10	13/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.00		0.80	20		Artesian
4.00	4.00	1.20	20		
5.20	5.20	-0.14	30		
18.00	15.00	1.40	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
Chiselling: 6.50-6.70m for 30 minutes & 8.50-8.80m for 40 minutes.
Artesian water noted at 5.20mbgl.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
At 14.50m, water level rose to 0.49m in 10mins. Rotary casing installed. Flush:Air/Mist

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378492.7 E 186568.4 N	**Borehole**	BH101
				Ground Level	3.36 m OD

Sampling/Testing | Drilling | Strata — Scale 1:50

Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
20.10 - 20.32	C	19.50 - 21.00	15.00	99 87	60	7					
		21.00 - 22.50	15.00	53 47	9	AZCL		Between 21.00m - 21.70m, assumed zone of core loss.			
						NI		Between 21.70m - 21.80m, non-intact, recovered as angular to subangular fine to coarse gravel.			
						11					
22.68 - 22.76	C	22.50 - 24.00	15.00	53 30	0	AZCL		Between 22.50m - 23.20m, assumed zone of core loss.			
						NI		Between 23.20m - 23.55m, very weak dark grey mudstone, recovered as angular to subangular fine to coarse gravel.			
						11					
		24.00 - 25.00	15.00	60 15	15	AZCL		Between 24.00m - 24.40m. assumed zone of core loss.			
						NI		Between 24.40m - 24.85m. non-intact, recovered as angular to subangular fine to coarse gravel of siltstone and sandstone.			
						7		Between 24.85m - 25.00m, very strong sandstone with occasional gypsum veins (1mm thick) with discontinuities subhorizontal stepped and rough.	25.00		-21.64
								End of Borehole			

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
14.85	14.70	-0.70	27/08/24	08:00
22.50	15.00	1.10	27/08/24	17:00
22.50	15.00	0.00	28/08/24	08:00
25.00	15.00		28/08/24	16:40

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378526.6 E 186599.0 N	**Borehole**	BH102
				Ground Level	2.95 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots (up to 8mm in diameter).			
0.20	HV		15/18/17 kPa			0.30		2.65
0.25	D				Soft grey mottled brown slightly sandy CLAY with occasional rootlets and roots (up to 10mm in diameter).			
0.25	ES							
0.25			PID: <0.1 ppm					
0.30 - 0.80	B				Spongy dark brown mottled black slightly clayey fibrous PEAT.	0.80		2.15
0.50	D							
0.50	ES							
0.50			PID: <0.1 ppm					
0.50	HV		32/30/34 kPa					
0.80 - 1.20	B				Very soft dark brown and grey slightly sandy organic CLAY with occasional pockets (up to 10mm in size) of organic material.	1.60		1.35
1.00	D		w: 448 %					
1.00	ES							
1.00			PID: 5 ppm					
1.20 - 1.65		1.20 (0.70)		S0*/ 450mm				
1.20 - 1.65	D							
1.60 - 2.20	B							
2.00	D		w: 36 %					
2.20 - 2.65	UT	2.20 (1.70)	2 blows		At 3.00m, grading to clayey sand.			
2.20 - 3.20	B					3.30		-0.35
2.65 - 2.80	D				Firm grey mottled brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse sandstone.			
3.00	D							
3.20 - 3.65		3.20 (2.90)		S9				
3.20 - 3.65	D					4.00		-1.05
3.30 - 4.00	B				Dense dark brown sandy GRAVEL with a low cobble content of subrounded sandstone. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.			
3.80	D		w: 17 %					
4.20 - 4.65		4.20 (4.10)		C41	Between 4.00-8.30m, driller notes boulders.			
4.20 - 5.20	B							
5.00	D							
5.20 - 5.52		5.20 (5.00)		C50/ 175mm	At 5.20m, very dense.			
5.20 - 6.20	B							
6.00	D							
6.20 - 6.65		6.20 (0.00)		C36				
6.20 - 7.20	B							
7.00	D							
7.20 - 7.40		7.20 (0.00)		C50/ 90mm	At 7.20m, very dense.			
7.20 - 8.00	B							
7.50	D							
8.00 - 8.45		8.00 (0.60)		C18				
8.30 - 9.50	B				Stiff dark brown and dark grey slightly sandy slightly gravelly CLAY with a low cobble content of subangular sandstone. Gravel is angular to subangular fine to coarse sandstone.	8.30		-5.35
9.00	D		w: 5 %					
9.50 - 9.50		9.00 (8.60)		S50/ 0mm				
10.00 - 11.20	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20		Inspection Pit	MR/SS
13.18	0.20	Cable Percussion	MR/SS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			14/08/24	08:00
11.65	9.00	8.20	14/08/24	18:00
11.65	9.00	-0.20	15/08/24	08:00
13.18	9.00	6.10	15/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20		0.70	20		For the -0.41m water strike only : Water level above ground level
6.20	6.20	-0.41	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiselling: 6.60-6.90m for 60 minutes, 9.50-10.00m for 60 minutes & 12.80-13.00m for 30 minutes.
Artesian water noted at 6.20mbgl. Driller notes water rising around casing.
Borehole terminated at 13.18m, on Clients instruction following 30 minutes chiselling and SPT N value >50.
Borehole backfilled with bentonite on completion.

Logged by SI

Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH102
Client	National Grid	**National Grid Coordinates**	378526.6 E 186599.0 N	**Ground Level**	2.95 m OD

Sampling | Properties | Strata | Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.80	D							
11.20 - 11.65		9.00 (8.20)		S30				
11.20 - 11.65	D							
11.80	D				Extremely weak grey MUDSTONE. Probably interbedded with extremely weak grey SANDSTONE, recovered as clayey gravel.	11.70		-8.75
12.00 - 12.30		9.00 (6.60)		S50/ 150mm				
12.00 - 12.30	D							
12.00 - 13.00	B							
12.80	D							
13.00 - 13.18		9.00 (6.10)		S50/ 85mm				
13.00 - 13.18	D				End of Borehole	13.18		-10.23

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378529.0 E 186531.9 N	**Borehole**	BH103
				Ground Level	3.20 m OD

Scale 1:50

Sampling Depth	Sample Type	Depth Cased & (to Water)	Properties Results	SPT N	Strata Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft dark brown slightly sandy clay with occasional rootlets and roots (up to 15mm in diameter).			
0.20	HV		10/13/15 kPa			0.30		2.90
0.25	D				Soft dark brown occasionally mottled grey slightly sandy CLAY.			
0.25	ES							
0.25			PID: <0.1 ppm					
0.30 - 1.00	B							
0.50	D		w: 45 %					
0.50	ES							
0.50			PID: <0.1 ppm					
0.50	HV		25/28/24 kPa		Very soft greyish brown and brown slightly sandy organic CLAY with occasional pockets (up to 10mm in size) of organic material.	1.30		1.90
1.00	D							
1.00	ES							
1.00			PID: <0.1 ppm					
1.20 - 1.65		1.20 (0.40)		S0*/ 450mm				
1.20 - 1.65	D							
1.30 - 2.20	B							
1.80	D		w: 54 %					
2.20 - 2.65	UT	1.90 (1.60)	6 blows					
2.20 - 3.20	B							
2.80	D		w: 49 %		Very soft dark brown slightly sandy organic CLAY with many pockets (upto 80mm in size) of fibrous peat.	3.20		0.00
3.20 - 3.65		3.20 (2.10)		S2				
3.20 - 3.65	D							
3.20 - 3.80	B		w: 146 %		Stiff greyish brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse sandstone.	3.80		-0.60
3.80 - 4.40	B							
4.00	D		w: 24 %					
4.40 - 4.85		4.40 (0.00)		S33	Dense dark brown slightly sandy GRAVEL. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.	4.40		-1.20
4.40 - 4.85	D							
4.40 - 5.30	B							
5.00	D							
5.30 - 5.75		5.30 (0.00)		C30				
5.30 - 6.30	B							
6.00	D							
6.30 - 6.72		6.30 (0.00)		C50/ 275mm	At 6.30m, very dense.			
6.30 - 7.20	B							
7.00	D							
7.20 - 7.65		7.20 (-0.10)		C35				
7.20 - 7.70	B							
7.50	D					7.70		-4.50
7.70 - 8.10	B				Very stiff dark brown slightly sandy gravelly CLAY with a low cobble content of subrounded sandstone. Gravel is angular to subrounded fine to coarse sandstone.			
8.00	D		w: 15 %					
8.10 - 8.55		8.00 (2.20)		S39				
8.10 - 8.55	D							
8.50 - 9.50	B							
9.00	D							
9.50 - 9.95	UT	9.50 (5.40)	56 blows cu: 144 kPa					
9.50 - 9.95								
10.00 - 11.20	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20		Inspection Pit	MR/TS
14.27	0.20	Cable Percussion	MR/TS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			20/08/24	08:00
14.27	9.50	5.50	20/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.75		0.40	20		Water level above ground level.
4.40	4.40	-0.41	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Borehole backfilled with bentonite completion.

Logged by SI

Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378529.0 E 186531.9 N	**Borehole**	BH103
				Ground Level	3.20 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.80	D							
11.20 - 11.54		9.50 (5.50)		S50/ 190mm				
11.20 - 11.54	D							
11.20 - 12.50	B							
12.00	D		w: 15 %					
12.70	D				Extremely weak dark grey MUDSTONE with occasional coal fragments (up to 6mm in size), recovered as clayey gravel.	12.60		-9.40
12.80 - 13.12		9.50 (5.40)		S50/ 190mm				
12.80 - 13.12	D							
13.00 - 14.00	B							
13.50	D							
14.00 - 14.27		9.50 (5.50)		S50/ 150mm				
14.00 - 14.27	D				End of Borehole	14.27		-11.07

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure Sheet 2 of 2

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378634.4 E 186469.8 N	**Borehole**	BH104

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft slightly sandy organic clay with many rootlets and occasional roots (up to 15mm diameter).			
0.20	HV		15/17/16 kPa			0.30		
0.25	D				Very soft grey and dark brown slightly sandy CLAY with occasional pockets (up to 10mm in size) of organic material and occasional roots (up to 20mm diameter).			
0.25	ES							
0.25			PID: 0.1 ppm					
0.30 - 1.00	B							
0.50	D				Below 1.00m, roots absent.			
0.50	ES							
0.50			PID: <0.1 ppm					
0.50	HV		20/19/20 kPa					
1.00	D							
1.00	ES							
1.00			PID: 5 ppm					
1.20 - 1.65	UTF	1.20 (0.00)	1 blows		Spongy brown fibrous PEAT with many pockets (up to 80mm in size) of brownish grey organic clay and occasional wood fragments (up to 40mm in size).	2.00		
1.20 - 2.00	D		w: 53 %					
2.00 - 2.45		2.00 (0.00)		S1				
2.00 - 2.45	D							
2.00 - 3.20	B							
2.80	D		w: 162 %					
3.20 - 3.65	UT	3.00 (0.80)	8 blows			3.40		
3.40 - 4.50	B				Stiff dark brown and dark grey slightly gravelly sandy CLAY with a low cobble content of subangular sandstone. Gravel is subangular to subrounded fine to coarse sandstone.			
4.00	D		w: 17 %					
4.50 - 4.95		4.50 (2.10)		S19				
4.50 - 4.95	D							
5.10 - 6.00	B				Medium dense dark brown sandy GRAVEL with a low cobble content of subrounded sandstone. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.	5.10		
5.50	D							
6.00 - 6.45		6.00 (4.10)		C20				
6.20 - 7.00	B				Stiff dark grey slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse sandstone and quartzite.	6.20		
6.50	D		w: 15 %					
7.00 - 7.45		7.00 (DRY)		S23				
7.00 - 7.45	D							
7.00 - 8.20	B							
7.80	D							
7.80	W							
8.20 - 8.65		7.50 (DRY)		S33				
8.20 - 8.65	D							
8.20 - 9.00	B							
9.30	D							
9.50 - 9.95	UT	7.50 (DRY)	36 blows cu: 304 kPa					
9.95 - 10.10	D							
10.00 - 11.00	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20		Inspection Pit	MR/SS
11.80	0.20	Cable Percussion	MR/SS
13.90	0.15	Cable Percussion	MR/SS
25.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			15/08/24	08:00
6.45	6.00	4.10	15/08/24	18:00
6.45	6.00	DRY	16/08/24	08:00
11.80	7.50	7.80	16/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.20		0.00	20		
11.80	7.50	7.80	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Flush : Air/Mist

Logged by SI

Figure Sheet 1 of 4
05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378634.4 E 186469.8 N	**Borehole**	BH104

Sampling | Properties | Strata | Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.80	D		w: 13 %					
11.00 - 11.45		7.50 (10.60)		S35				
11.00 - 11.45	D							
11.80 - 12.20	B							
					Dense grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse sandstone.	11.80		
12.20 - 12.65		12.20 (1.20)		C37				
12.20	D					12.40		
12.40 - 13.20	B				Extremely weak dark grey MUDSTONE, recovered as angular to subangular fine to coarse gravel.			
12.80	D							
13.20 - 13.48		13.20 (1.00)		S50/ 150mm				
13.20 - 13.48	D							
13.20 - 13.90	B							
13.50	D							
13.90 - 14.00		13.90 (0.00)		S50/ 50mm		13.90		
13.90 - 14.00	D				***Borehole continued using alternative techniques - see next page***			

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
11.80	7.50	-0.10	19/08/24	08:00
13.90	13.90	0.00	19/08/24	18:00
13.90	14.50	-0.30	29/08/24	08:00
25.50	14.50	0.00	29/08/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378634.4 E 186469.8 N	**Borehole**	BH104

Sampling/Testing		Drilling					Strata			Scale 1:50	
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
							Borehole continued using rotary drilling techniques - see below				
		13.90 - 15.00	13.90	100 64	0	NI 16	Weak to medium strong dark grey SILTSTONE. Discontinuities are subhorizontal (0-15 degrees), very closely and closely spaced, stepped, rough and clean.	Between 13.90m-14.30m, non-intact, recovered as angular to subangular fine to coarse gravel.			
15.47 - 15.55	C	15.00 - 16.50	13.90	93 33	0	AZCL 17 NI 1	Very weak black COAL, recovered as angular and subangular fine to coarse gravel.	Between 15.00m-15.10m, assumed zone of core loss.	15.70		
18.00 - 18.33	C	16.50 - 18.00	13.90	90 60	8	AZCL NI 11	Strong grey SILTSTONE with occasional very strong ironstone nodules up to 20mm in size. Discontinuities are (Set i) subhorizontal (0-15 degrees) closely and medium spaced, stepped, rough with occasional pyrite mineralisation (1mm thick). (Set ii) (75-90 degrees) open/closed, subhorizontal undulating stepped, rough with occasional pyrite crystals.	Between 16.50m-16.65m. assumed zone of core loss. Between 17.10m-17.50m. subhorizontal discontinuities (75-90 degrees) undulating, partially open, stepped, rough with occasional pyrite mineralisation (1mm thick). Between 18.00m-18.50m. subhorizontal discontinuity, partially open and clean, stepped, rough with pryite mineralisation up to (10mm thick). Between 18.60m-18.75m. discontinuity inclined at (70 degrees) stepped and rough. Between 19.40m and 19.50m. discontinuity inclined between (60-70 degrees), stepped rough and clean. Between 19.50m and 19.75m. discontinuity subhorozontal, undulating and closed.	17.10		
		18.00 - 19.50	13.90	100 95	54	4					
20.00 - 20.10	C	19.50 - 21.00	13.90	100 100	94						

Boring

Depth	Hole Dia.	Technique	Crew
1.20		Inspection Pit	MR/SS
11.80	0.20	Cable Percussion	MR/SS
13.90	0.15	Cable Percussion	MR/SS
25.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			15/08/24	08:00
6.45	6.00	4.10	15/08/24	18:00
6.45	6.00	DRY	16/08/24	08:00
11.80	7.50	7.80	16/08/24	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.20		0.00	20		
11.80	7.50	7.80	20		

Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Flush : Air/Mist

Logged by SI

Figure Sheet 3 of 4
05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378634.4 E 186469.8 N	**Borehole**	BH104

Sampling/Testing | Drilling | Strata | Scale 1:50

Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		19.50 - 21.00	13.90	100 100	94		Very strong grey dark grey SILSTONE. Discontinuities are (Set i) subhorizontal (0-15 degrees) medium and closely spaced, stepped, rough and clean. (Set ii) subvertical (75-90 degrees), partly open, undulating, stepped, rough with pyrite crystals.		20.10		
		21.00 - 22.50	13.90	100 97	94						
21.45 - 21.89	C					NI		Between 21.38m and 21.46m. non-intact, recovered as angular to subangular fine to coarse gravel.			
						1					
		22.50 - 24.00	13.90	100 97	74						
							Strong grey SILSTONE. Discontinuities are (Set i) subhorizontal (0-15 degrees) closely and medium spaced, stepped, rough and clean. (Set ii) discontinuities inclined between (60-70 degrees) undulating and stepped, rough and clean.	At 22.95m. Ironstone nodule.	23.00		
23.55 - 23.75	C							Between 23.10m and 23.40m. discontinuity subhorozontal (80-90 degrees), stepped, rough and clean.			
						4		Between 23.80m and 24.00m. fracture inclined at (70 degrees), closed.			
		24.00 - 25.50	13.90	100 87	57			Between 24.10m and 24.40m. discontinuity inclined between (60 and 70 degrees) stepped, rough and clean.			
24.95 - 25.35	C					NI		Between 24.80m and 25.00m, weak and dark grey, non-intact, recovered as angular to subangular fine to coarse gravel.			
						4		Below 25.00m. becoming very strong.	25.50		
								End of Borehole			

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
11.80	7.50	-0.10	19/08/24	08:00
13.90	13.90	0.00	19/08/24	18:00
13.90	14.50	-0.30	29/08/24	08:00
25.50	14.50	0.00	29/08/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378542.2 E 186424.2 N	**Borehole**	BH105
				Ground Level	3.04 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets up to 20mm in diameter.			
0.25	D					0.30		2.74
0.25	ES				Soft blueish grey slightly sandy CLAY with occasional roots up to 10mm in diameter.			
0.25			PID: <0.1 ppm					
0.25	HV		15/18/17 kPa					
0.50	D		w: 34 %					
0.50	ES							
0.50 - 1.00	B					1.20		1.84
0.50			PID: <0.1 ppm		Very soft bluish grey slightly sandy organic CLAY with large pockets (up to 100mm in size) of peat.			
0.50	HV		40/38/39 kPa					
1.00	D							
1.00	ES							
1.00			PID: 0.10 ppm					
1.20 - 1.65		1.20 (0.20)		S1				
1.20 - 1.65	D		w: 38 %					
1.20 - 2.20	B							
2.00	D							
2.20 - 2.65	UT	2.20 (DRY)	2 blows					
2.20 - 3.20	B							
2.65 - 2.80	D							
2.80	D							
3.00	D				Below 3.50m, driller noted presence of peat bands.			
3.20 - 3.65		3.20 (3.20)		S0*/ 450mm				
3.20 - 3.65	D							
3.20 - 4.40	B							
4.00	D							
4.40 - 4.85	UT	4.40 (DRY)	4 blows					
4.80 - 5.20	B					4.80		-1.76
5.00	D				Medium dense dark brown slightly sandy GRAVEL with a low cobble content of subrounded sandstone and quartzite. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.			
5.20 - 5.65		5.20 (0.80)		S25				
5.20 - 6.50	B							
6.00	D							
6.50 - 6.57		6.50 (1.00)		C50/ 10mm	At 6.50m, very dense.			
6.50 - 7.30	B							
7.00	D							
7.40	D		w: 11 %		Stiff dark brown slightly sandy slightly gravelly CLAY with a low cobble content of subrounded quartzite and sandstone. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.	7.30		-4.26
7.50 - 7.95		7.50 (7.50)		S26				
7.50 - 7.95	D							
7.50 - 8.50	B							
8.00	D							
8.50 - 8.95	UT	8.50 (7.60)	47 blows					
8.50 - 9.50	B							
8.95 - 9.10	D							
8.95 - 9.10	UT		20 blows					
9.40	D							
9.50 - 9.95		9.00 (7.60)		S35	Below 9.50m, becoming very stiff.			
9.50 - 9.95	D							
10.00 - 11.00	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
3.20	0.20	Cable Percussion	MR/TS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			27/08/24	13:00
3.20	3.20	3.20	27/08/24	18:00
3.20	3.20	DRY	28/08/24	08:00
15.00	9.00	11.60	28/08/24	14:41

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.20	1.20	0.20	20		
5.00	5.00	0.80	20		

Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub. Chiselling 6.50 - 6.70m 30mins and 14.50 - 14.70m 30 mins. At 11.00m, UT catcher and shoe broken during sampling.

Logged by SI

Figure

Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH105
Client	National Grid	**National Grid Coordinates**	378542.2 E 186424.2 N	**Ground Level**	3.04 m OD

Sampling | Properties | Strata | Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.50	D							
11.00	UT	9.00 (10.20)	61 blows					
11.00 - 12.10	B							
11.45 - 11.60	D		w: 12 %					
11.80	D							
12.10 - 12.41		9.00 (10.10)		S50/ 156mm				
12.10 - 12.41	D							
12.70 - 13.40	B				Extremely weak greyish brown MUDSTONE, recovered as gravelly clay.	12.70		-9.66
13.00	D							
13.50	D				Extremely weak grey MUDSTONE, recovered as angular to subangular fine to coarse gravel.	13.40		-10.36
13.60 - 13.98		9.00 (12.10)		S50/ 225mm				
13.60 - 13.98	D							
13.60 - 14.70	B							
14.50	D							
14.70 - 14.99		9.00 (11.60)		S50/ 145mm				
14.70 - 14.98	D				End of Borehole	15.00		-11.96

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378571.7 E 186406.9 N	**Borehole**	BH106
				Ground Level	3.15 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.40	B				TOPSOIL: Very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.25	D							
0.25	ES					0.40		2.75
0.25			PID: <0.1 ppm		Very soft bluish grey slightly sandy CLAY.			
0.25	HV		12/11/15 kPa					
0.50	D							
0.50	ES							
0.50 - 1.00	B		w: 53 %					
0.50			PID: <0.1 ppm					
0.50	HV		18/20/19 kPa					
1.00	D							
1.00	ES				Below 1.60m: with occasional large pockets (up to 80mm in size) of peat.			
1.00			PID: <0.1 ppm					
1.20 - 1.65		1.20 (0.00)		S0*/ 450mm				
1.20 - 1.65	D							
1.60 - 2.50	B							
2.00	D							
2.50 - 2.95		2.50		S0*/				
2.50 - 2.95	D	(DRY)		450mm				
2.50 - 3.50	B							
3.00	D							
3.50 - 3.95		3.50		S0*/				
3.50 - 3.95	D	(DRY)		450mm		3.60		-0.45
3.50 - 4.50	B				Spongy dark brown fiberous PEAT.			
4.00	D							
4.50 - 4.95		4.50 (2.70)		S26				
4.50 - 4.95	D					4.70		-1.55
4.70 - 5.50	B				Medium dense dark brown slightly sandy GRAVEL with a low subangular cobble content of sandstone and quartzite. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.			
5.00	D							
5.50 - 5.95		5.50 (1.10)		C33	At 5.50m, dense.			
5.50 - 6.50	B							
6.00	D							
6.50 - 6.90		6.50 (0.00)		C50/ 250mm	Below 6.50m: with a medium subrounded cobble content of sandstone and quartzite.			
6.50 - 7.50	B				At 6.50m, very dense.			
7.00	D							
7.50 - 7.95		7.50 (0.00)		C19				
7.80 - 8.50	B					7.80		-4.65
8.00	D		w: 12 %		Very stiff brownish grey slightly sandy gravelly CLAY. Gravel is angular to subanhgular fine to coarse of sandstone.			
8.50	UT	8.50 (7.10)	26 blows cu: 140 kPa		At 8.50m: becoming sandy clay.			
8.95 - 9.10	D							
9.00 - 10.00	B							
9.50	D							
10.00 - 10.45		9.00 (9.00)		S47				

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/SS
14.14	0.20	Cable Percussion	MR/SS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			12/09/24	08:00
14.14	9.00	12.10	12/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.00	0.00	0.00	20		
4.70	4.70	2.10	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiseling 7.10-7.30m 30mins.
Artesian water noted at a depth of 6.00m.

Logged by SI

Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH106
Client	National Grid	**National Grid Coordinates**	378571.7 E 186406.9 N	**Ground Level**	3.15 m OD

Sampling | Properties | Strata — Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.00 - 10.45	D							
10.50 - 11.50	B							
11.00	D		w: 13 %		Very stiff grey slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of sandstone.	11.00		-7.85
11.50 - 11.95		9.00 (10.30)		S31				
11.50 - 11.95	D							
12.20 - 13.00	B				Extremely weak grey MUDSTONE, recovered as angular to subangular fine to coarse gravel.	12.20		-9.05
12.50	D							
13.10 - 13.50		9.00 (11.60)		S50/ 245mm				
13.10 - 13.50	D							
13.40	D							
13.80 - 14.14		9.00 (12.10)		S50/ 195mm				
13.80 - 14.14	D				End of Borehole	14.14		-10.99

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Borehole**	BH107
				Ground Level	2.95 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.20	B				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.10	HV		5/8/6 kPa			0.20		2.75
					Spongy dark brown to black fiberous PEAT.			
0.50	D							
0.50	ES							
0.50			PID: 0.10 ppm					
1.20 - 1.65		1.20 (0.20)		S0*/ 450mm				
1.20 - 2.50	D		w: 271 %					
2.50 - 2.95		2.50 (0.30)		S0*/ 450mm				
2.50 - 3.50	D							
3.50 - 3.95		3.50 (0.60)		S0*/ 450mm				
3.50 - 4.50	B							
4.00	D		w: 53 %		Below 4.00m, becoming slightly clayey fiberous peat.			
4.50	UTF	4.50 (1.00)	10 blows		Soft dark brown slightly gravelly sandy CLAY. Gravel is subangular and subrounded fine to coarse of sandstone and quartzite.	4.50		-1.55
4.50 - 5.40	B		w: 22 %					
5.20	D							
5.40 - 5.85		5.40 (1.80)		S23	Medium dense greyish brown sandy GRAVEL with a low subangular cobble content of sandstone and quartzite. Gravel is subangular and subrounded fine to coarse of sandstone and quartzite.	5.40		-2.45
5.40 - 5.85	D							
5.50 - 6.50	B							
6.00	D							
6.50 - 6.95		6.50 (0.00)		S33	At 6.50m, dense.			
6.50 - 7.50	B							
7.00	D							
7.50 - 7.95		7.50 (1.80)		S18				
7.70 - 8.70	B				Stiff to very stiff dark brown slightly sandy gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and quartzite.	7.70		-4.75
8.20	D		w: 14 %					
8.70 - 9.15	UT	8.70 (DRY)	57 blows					
8.70 - 9.15			cu: 64 kPa					
9.15 - 9.30	D							
9.30 - 10.00	B							
9.50	D							
10.00 - 10.45		9.00 (DRY)		S31				
10.00 - 10.45	D							

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
14.70	0.20	Cable Percussion	MR/TS
49.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			09/09/24	08:00
14.50	9.00	8.80	09/09/24	17:00
14.50	14.50	1.20	11/09/24	08:00
25.50	14.50	2.90	11/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
5.40	5.40	-0.46	20		
21.00	14.50	14.30	20		

Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub. Not possible to take ES samples at 0.25 and 1.00m due to excessive water and little recovery.
Artesian water noted at 5.40m, water level to 0.46m above ground level.
Flush:Air/Mist.

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH107
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Ground Level**	2.95 m OD

Scale 1:50

Sampling			Properties		Strata			
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
					Below 10.00m, becoming very stiff.			
10.50 - 11.50	B							
11.00	D		w: 17 %					
11.50 - 11.95		9.00		S38				
11.50 - 11.95	D	(DRY)						
12.00 - 13.00	B							
12.50	D							
						13.10		-10.15
13.20 - 13.52		9.00 (8.80)		S50/ 165mm	Extremely weak dark grey MUDSTONE, recovered as angular and tabular fine to coarse gravel.			
13.20 - 13.52	D							
13.50 - 14.50	B							
14.00	D							
14.50 - 14.70		9.00 (8.80)		S50/ 115mm	Between 14.50m - 16.80m, no recovery.			
						14.70		-11.75
14.50	D				***Borehole continued using alternative techniques - see next page***			

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				25.50	14.50	-0.30	12/09/24	08:00						
				39.00	14.50	12.00	12/09/24	17:00						
				39.00	14.50	-0.65	13/09/24	08:00						
				49.50	14.50		13/09/24	17:00						

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Borehole**	BH107
				Ground Level	2.95 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
							Borehole continued using rotary drilling techniques - see below				
		14.50 - 16.00	14.50	0 NA	NA	NR	Soft MUDSTONE to gravelly clay. (drillers description)				
		16.00 - 16.50	14.50	0 NA	NA		Soft MUDSTONE. (drillers description)		16.00		-13.05
		16.50 - 18.00	14.50	14 7	0	NI	Extremely weak black carbonaceous MUDSTONE. Generally non-intact, recovered as angular to subangular fine to coarse gravel.		16.50		-13.55
		18.00 - 19.50	14.50	54 47	7	AZCL		Between 18.00m - 18.70m. assumed zone of core loss.			
18.95 - 19.05	C					11	Weak dark grey slightly sandy MUDSTONE with occasional black plant remains up to 5mm diameter on discontinuity surface. Discontinuities are generally subhorizontal (0-15 degrees) very closely and closely spaced, stepped, rough.		18.80		-15.85
		19.50 - 21.00	14.50	73 60	23	AZCL		Between 19.50m - 19.90m. assumed zone of core loss.			

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
14.70	0.20	Cable Percussion	MR/TS
49.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			09/09/24	08:00
14.50	9.00	8.80	09/09/24	17:00
14.50	14.50	1.20	11/09/24	08:00
25.50	14.50	2.90	11/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
5.40	5.40	-0.46	20		
21.00	14.50	14.30	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub. Not possible to take ES samples at 0.25 and 1.00m due to excessive water and little recovery.
Artesian water noted at 5.40m, water level to 0.46m above ground level.
Flush:Air/Mist.

Logged by SI

Figure

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Borehole**	BH107
				Ground Level	2.95 m OD

Sampling/Testing | Drilling | Strata — Scale 1:50

Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		19.50 - 21.00	14.50	73 60	23	12		Between 20.00m - 20.40m. with occasional coal fragments up to 5mm diameter.			
							Very strong grey SILTSTONE with rare gypsum veins up to 1mm thick. Discontinuities are (Set i) subhorizontal (0-15 degrees) very closely and medium spaced, stepped, rough and clean. (Set ii) subvertical (80-90degrees) varying to between (60-70 degrees), stepped, rough with rare gypsum veins (up to 1mm thick) on discontinuity surfaces.	Between 20.60 - 20.80m, 20.80 - 21.20m, 21.40 - 21.52m, 21.52 -21.73 and 21.90 - 22.50m discontinuities vertical inclined between (70-90 degrees) stepped, rough with rare gypsum veins (up to 1mm thick)	20.60		-17.65
		21.00 - 22.50	14.50	99 73	43	8					
21.35 - 21.52	C										
		22.50 - 24.00	14.50	100 80	7	NI	Medium strong dark grey SILTSTONE. discontinuities are predominantly subhorizontal (15 degrees) plannar, smooth and clean.	Between 22.50 - 22.60m. non-intact recovered as angular to subangular fine to coarse gravel fragments.	22.50		-19.55
23.15 - 23.28	C					13					
						NI		Between 23.65 - 23.90m. non-intact recovered as angular and subangular fine to coarse gravel.	23.90		-20.95
						20					
		24.00 - 25.50	14.50	87 47	0	AZCL	Weak to medium strong dark grey slightly sandy MUDSTONE with rare very strong siltstone bands up to 50mm thick. Discontinuities are subhorizontal (0-15 degrees) very closely and closely spaced plannar, rough and clean.				
						NI		Between 24.10m - 24.25m, non-intact, recovered as angular to subangular fine to coarse gravel.			
						7					
						NI		Between 24.68m - 24.80m, non-intact recovered as angular to subangular fine to coarse gravel.			
						19		Between 25.00m - 25.80m. assumed zone of core loss.			
		25.50 - 27.00	14.50	80 47	0	AZCL					
						+25		At 26.10m. layer of very strong siltstone. Between 26.10m - 26.15m, 26.55m - 26.60m, 26.70m - 26.78m and 26.87m - 26.95m, non-intact recovered as angular to subangular fine to coarse gravel, possibly extremely closely fractured.	27.00		-24.05
		27.00 - 28.50	14.50	87 54	11	AZCL	Very strong grey SILTSTONE with many discontinuities subhorizontal black carbonaceous lenses (up to 1mm thick). Discontinuities are (Set i) subhorizontal (0-15 degrees) very closely and closely spaced, stepped, rough and clean. (Set ii) subhorizontal (75-90 degrees) inclined, stepped, rough with occasional pyrite crystals and gypsum veins (up to 1mm thick).				
27.40 - 27.50	C					12		Between 27.00m - 27.20m. assumed zone of core loss.			
						NI		Between 27.80m - 27.88m, non-intact, recovered as angular to subangular fine to coarse gravel.			
28.15 - 28.33	C					7					
						NI		Between 28.30m - 28.50m. non-intact, recovered as angular to subangular fine to coarse gravel.			
		28.50 - 30.00	14.50	63 47	0	AZCL		Between 28.50m - 29.05m. assumed zone of core loss.			
						12		Between 29.20m - 29.30m, 29.38m - 29.48m, 29.50m - 29.58m and 29.60m - 29.80m, discontinuities inclined between (70-80 degrees), stepped rough, with occasional sand infill (up to 2mm thick).			

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
25.50	14.50	-0.30	12/09/24	08:00
39.00	14.50	12.00	12/09/24	17:00
39.00	14.50	-0.65	13/09/24	08:00
49.50	14.50		13/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Borehole**	BH107
				Ground Level	2.95 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata			
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Level (m OD)
		30.00 - 31.00	14.50	90 48	36	AZCL NI 4 NI		Between 30.00m - 30.10m. assumed zone of core loss. Between 30.10m - 30.33m. non-intact recovered as angular to subangular fine to coarse gravel. At 30.30m. Discontinuities inclined (60-70 degrees), stepped, rough and clean.		
		31.00 - 32.30	14.50	85 54	10	AZCL NI 13 NI		Between 31.00m - 31.20m, assumed zone of core loss. Between 31.20m - 31.46m, non-intact, recovered as angular to subvangular fine to coarse gravel. Between 31.46m - 31.63m and 31.90m - 32.00m, discontinuities vertical (90 degrees), stepped, rough and clean.		
		32.30 - 33.60	14.50	100 88	54	9 NI		Between 32.00m - 32.50m, non-intact, recovered as angular and subangular fine to coarse gravel and cobbles. Between 32.50m - 33.10m, vertical discontinuity (90 degrees), stepped, rough and clean. Between 33.50m - 33.60m. non-intact, recovered as angular to subangular fine to coarse gravel.		
		33.60 - 35.00	14.50	71 43	11	AZCL NI 13 NI 14	Strong to very strong dark grey thinly laminated SILTSTONE with rare gypsum veins up to 1mm thick. Discontinuities are (Set i) subhorizontal (0-15 degrees) very closely and closely spaced plannar, rough and clean. (Set ii) Vertical (80-90 degrees), stepped, rough with occasional gypsum veins (up to 1mm thick) on surface.		34.00	-31.05
		35.00 - 36.00	14.50	100 90	45	+25 20	Very strong grey SILTSTONE. Discontinuities subhorizontal (0-15 degrees) closely and medium spaced, stepped, rough and clean. Black carbonaceous lenses (up to 1mm thick).	Between 34.00m - 34.10m and 34.26m - 34.34m, non-intact, recovered as angular and tabular fine to coarse gravel. At 34.60m., discontinuity inclined between (80-90 degrees), undulating, stepped, rough and clean. Between 35.00m - 35.30m, non-inact, recovered as angular to subangular fine to coarse gravel. 35.70m - 35.90m. discontinuity inclined at (70 degrees) stepped, rough and clean.	34.90	-31.95
36.25 - 36.30	C	36.00 - 37.50	14.50	100 83	37	8		Between 36.50m - 36.70m. vertical discontinuity inclined (85 degrees) stepped, rough and clean.		
37.10 - 37.24	C									
38.00 - 38.25	C	37.50 - 39.00	14.50	93 80	49	AZCL 8 NI 20		Between 37.50m - 37.60m. assumed zone of core loss.		
		39.00 - 40.50	14.50	100 90	51	10 +25	Very strong grey SILTSTONE. Discontinuities predominantly subhorizontal (0-15 degrees), closely and medium spaced, stepped, rough and clean.	Between 39.30m - 39.56m. discontinuities subhorizontal extremely closely spaced.	39.56	-36.61

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
49.50	14.50		16/09/24	08:00
49.50	14.50		16/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

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GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Borehole**	BH107
				Ground Level	2.95 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		39.00 - 40.50	14.50	100 90	51	5					
		40.50 - 42.00	14.50	100 98	73	NI		Between 40.78m - 40.82m. non-intact, recovered as angular and subangular fine to coarse gravel. Between 40.90m - 41.00m. discontinuity inclined (60 degrees), closely spaced, plannar, rough and clean.			
		42.00 - 43.50	14.50	100 93	47	6		Between 42.56m - 42.67m, 42.80m - 42.92m and 42.95m - 43.10m. discontinuities inclined (50-70 degrees), stepped, rough and clean.			
		43.50 - 45.00	14.50	100 87	27	NI 7		Between 43.50m - 43.62m. non-intact, recovered as angular to subangular fine to coarse gravel. Between 43.75m - 43.95m. discontinuities inclined at (70 degrees), stepped, rough and clean. Between 44.10m - 44.25m, 44.72m - 44.98m. discontinuities inclined (40-60 degrees), stepped, rough and clean. Between 45.00m - 45.20m. assumed zone of core loss. Between 45.30m - 45.38m, 45.40m - 45.48m, 45.51m - 45.59m, 45.90m - 45.98m and 46.32m - 46.42m. discontinuities inclined (40-70 degrees) stepped, rough and clean.			
		45.00 - 46.50	14.50	87 67	33	AZCL 9 NI 10	Weak to medium strong dark grey SILTSTONE. Discontinuities are (Set i) subhorizontal very closely and closely spaced, stepped, rough and clean. (Set ii) inclined (40-70 degrees), stepped, rough and clean.		45.90		-42.95
		46.50 - 48.00	14.50	100 67	33	8 NI		Between 46.00m - 46.20m. non-intact, recovered as angular to subangular fine to coarse gravel. Between 46.60m - 46.70m, 46.90m - 47.10m and 47.50m - 47.55m, discontinuities inclined at (40-70 degrees) stepped, rough and clean.			
		48.00 - 49.50	14.50	93 73	24	AZCL 9		Between 48.00m - 48.10m, assumed zone of core loss. Between 48.40m - 48.46m, 48.70m - 48.90m and 48.90m - 49.10m, discontinuities inclined at (40-70 degrees) stepped, rough and clean.			
								End of Borehole	50.00		-47.05

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH107
Client	National Grid	**National Grid Coordinates**	378601.9 E 186379.5 N	**Ground Level**	2.95 m OD

Sampling/Testing		Drilling					Strata				Scale 1:50
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)

Boring				**Progress**					**Groundwater**					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378582.9 E 186364.4 N	**Borehole**	BH108
				Ground Level	3.05 m OD

Scale 1:50

Sampling Depth	Sample Type	Depth Cased & (to Water)	Properties Results	SPT N	Strata Description	Depth	Legend	Level (m OD)
0.25	D				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.25	ES					0.40		2.65
0.25			PID: <0.1 ppm		Soft bluish grey slightly sandy CLAY.			
0.25	HV		10/12/11 kPa					
0.40 - 1.00	B							
0.50	D		w: 54 %			1.00		2.05
0.50	ES				Spongy dark brown fiberous PEAT.			
0.50			PID: <0.1 ppm					
0.50	HV		37/40/38 kPa					
1.00			PID: <0.1 ppm					
1.10	D							
1.10	ES							
1.20 - 1.65		1.20 (0.00)		S0*/ 450mm				
1.20 - 1.65	D							
1.20 - 2.50	B							
2.00	D							
2.50 - 2.95		2.50 (1.80)		S0*/ 450mm				
2.50 - 3.50	B							
3.00	D							
3.50 - 3.95		3.50 (2.10)		S0*/ 450mm				
3.50 - 3.95	D							
3.50 - 4.30	B							
4.00	D							
4.40	D		w: 25 %			4.30		-1.25
4.60	UT	4.50 (DRY)	31 blows w: 23 %		Stiff greyish brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and quartzite.			
4.60 - 5.50	B							
5.05 - 5.20	D							
5.40	D							
5.50 - 5.95		5.50 (5.10)		S35		5.50		-2.45
5.50	D				Medium dense greyish brown slightly sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.			
5.50 - 6.50	B							
6.00	D							
6.50 - 6.95		6.50 (-0.12)		C33				
6.50 - 7.50	B							
7.00	D							
7.50 - 7.95		7.50 (2.10)		C14				
7.70 - 8.50	B					7.70		-4.65
8.00	D		w: 19 %		Stiff dark brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and quartzite.			
8.50 - 8.95	UT	8.50 (7.70)	52 blows w: 21 %					
8.95 - 9.10	D							
9.00 - 10.00	B							
9.50	D							
10.00 - 10.45		9.00 (9.00)		S27				

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/SS
14.66	0.20	Cable Percussion	MR/SS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			11/09/24	09:00
11.50	9.00	11.30	11/09/24	17:00
11.50	9.00	DRY	12/09/24	08:00
14.66	9.00	DRY	12/09/24	09:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
5.80	5.80	+0.45	20		Water level above ground level.

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
In-situ permeability test carried out at 6.00m.

Logged by SI

Figure

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH108
Client	National Grid	**National Grid Coordinates**	378582.9 E 186364.4 N	**Ground Level**	3.05 m OD

Scale 1:50

Sampling			Properties	Strata				
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.00 - 10.45	D							
10.50 - 11.50	B							
11.00	D							
11.50 - 11.95		9.00 (11.30)		S21				
11.50 - 11.95	D							
12.00 - 12.90	B				Stiff grey slightly sandy gravelly CLAY with many mudstone lithorelics up to 100mm in size. Gravel is subangular to angular fine to coarse of mudstone and sandstone.	12.00		-8.95
12.50	D							
13.20 - 13.46		9.00 (DRY)		S50/ 120mm	Extremely weak dark grey MUDSTONE with occasional coal fragments up to 15mm in diameter.	12.90		-9.85
13.20 - 13.46	D							
13.50 - 14.50	B							
14.00	D							
14.50 - 14.66		9.00 (DRY)		S50/ 85mm				
14.50 - 14.66	D				End of Borehole	14.66		-11.61

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.25	D					0.30		2.74
0.25	ES				Very soft bluish grey slightly sandy CLAY with occasional roots up to 10mm in diameter.			
0.25			PID: <0.1 ppm					
0.25	HV		15/16/14 kPa					
0.40 - 1.10	B							
0.50	D		w: 60 %					
0.50	ES					1.10		1.94
0.50			PID: <0.1 ppm		Spongy dark brown fiberous PEAT with large pocket of clay (up to 100mm) in size.			
0.50	HV		18/19/16 kPa		Between 1.10m - 5.80m: bluish grey clay noted.			
1.00	D							
1.00	ES							
1.20 - 1.65		1.20 (0.00)		S0				
1.20 - 1.65	D							
1.20 - 2.50	B							
2.00	D		w: 84 %					
2.50 - 2.95	UT	2.50 (1.60)	2 blows					
2.50 - 3.50	B							
3.00	D							
3.50 - 3.95		3.20 (1.90)		S0				
3.50 - 3.95	D							
3.50 - 4.50	B							
4.00	D							
4.50 - 4.95	UT	2.60 (4.00)	4 blows					
4.50 - 5.50	D		w: 494 %					
5.50 - 5.95		5.50 (2.60)		S13				
5.50	D					5.80		-2.76
5.80 - 6.50	B				Dense dark brown sandy GRAVEL with a low cobble content of subrounded sandstone and quartzite. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.			
6.00	D							
6.50 - 6.95		6.50 (-0.12)		S33				
6.50 - 7.50	B							
7.00	D							
7.50 - 7.95		7.50 (0.00)		S37				
7.50 - 8.50	B							
8.00	D							
8.50 - 8.95		8.50 (0.00)		S22				
8.60 - 9.50	B				Firm brownish grey slightly sandy slightly gravelly CLAY with occasional sand/gravel lenses up to 200mm thick. Gravel is subangular to subrounded fine to coarse of sandstone and rare coal.	8.60		-5.56
9.00	D		w: 19 %					
9.50 - 9.95	UT	9.50 (DRY)	51 blows					
9.95 - 10.10	D							
10.00 - 11.00	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
14.30	0.20	Cable Percussion	MR/TS
49.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			29/08/24	08:00
11.45	9.50	DRY	29/08/24	18:00
11.45	9.50	5.90	30/08/24	08:00
14.30	9.50	13.30	30/08/24	14:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.10	0.00	0.00	20		
6.00	6.00	-0.12	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiselling 6.60m 6.80m 40mins and 14.20m - 14.30m 30mins. Flush:Air/Mist
Borehole backfilled on completion GL to 49.50 Bentonite pellets.

Logged by SI

Figure Sheet 1 of 6

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.50	D							
11.00 - 11.45		9.50 (DRY)		S27				
11.00 - 11.45	D							
11.50 - 12.50	B				Below 11.50:m, becoming stiff.			
12.00	D		w: 13 %					
12.50 - 12.95	UT	9.50 (DRY)	58 blows					
12.50 - 13.30	B							
12.50 - 12.95			cu: 186 kPa					
12.95 - 13.10	D							
13.00	D							
13.30 - 14.00	B				Extremely weak grey and dark grey MUDSTONE.	13.30		-10.26
13.50	D							
14.00 - 14.21		9.50 (13.30)		S50/ 60mm				
14.00 - 14.21	D				***Borehole continued using alternative techniques - see next page***	14.30		-11.26
14.30 - 14.32		9.50 (13.30)		S50/ 10mm				
14.30 - 14.32	D							

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				14.30	14.30	0.00	03/09/24	08:00						
				21.00	14.30	1.60	03/09/24	17:00						
				21.00	14.30	-0.80	04/09/24	08:00						
				34.50	14.30	1.20	04/09/24	17:00						

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Sampling/Testing | Drilling | Strata — Scale 1:50

Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
							Borehole continued using rotary drilling techniques - see below				
		14.30 - 15.00	14.30	43 0	0	AZCL	Strong grey SILTSTONE with many subhorizontal (0-15 degrees) black carbonaceous lenses (1mm thick). Below 18.30m discontinuities subhorizontal (0-15 degrees) very closely spaced, plannar, stepped, rough and clean.	Between 14.30m - 14.70m, assumed zone of core loss. Between 14.70m - 15.00m, non-intact, recovered as angular and subangular fine to coarse gravel.			
						NI					
		15.00 - 16.50	14.30	33 0	0	AZCL		Between 15.00m - 16.00m. assumed zone of core loss. Between 16.00m - 16.50m, non-intact, recovered as angular to subangular fine to coarse gravel with cobble.			
						NI					
		16.50 - 18.00	14.30	67 33	0	AZCL		Between 16.50m 17.00m. assumed zone of core loss. Between 17.00m - 18.30m, discontinuities subhorizontal, very closely spaced, planar, stepped, rough and clean.			
						>25					
18.20 - 18.25	C	18.00 - 18.50	14.30	100 80	0			Between 18.70m - 18.90m, non-intact, recovered as angular to subangular fine to coarse gravel.			
						18					
		18.50 - 18.80	14.30	100 40	0			Between 19.20m - 19.48m. discontinuity inclined (70-80 degrees) stepped, rough with occasional gypsum veins (<1mm thick).			
		18.80 - 19.50	14.30	79 50	14	NI					
						6					
		19.50 - 21.00	14.30	93 77	7	AZCL		Between 19.50m - 19.60m. assumed zone of core loss. Between 19.60m - 19.70m, non-intact, recovered as angular to subangular fine to coarse gravel.			
						NI					

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
14.30	0.20	Cable Percussion	MR/TS
49.50	0.12	Rotary Core	CJ/IJ

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			29/08/24	08:00
11.45	9.50	DRY	29/08/24	18:00
11.45	9.50	5.90	30/08/24	08:00
14.30	9.50	13.30	30/08/24	14:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.10	0.00	0.00	20		
6.00	6.00	-0.12	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiselling 6.60m 6.80m 40mins and 14.20m - 14.30m 30mins. Flush:Air/Mist
Borehole backfilled on completion GL to 49.50 Bentonite pellets.

Logged by SI

Figure Sheet 3 of 6
05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Sampling/Testing | Drilling | Strata — Scale 1:50

Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		19.50 - 21.00	14.30	93 77	7	13 NI >25 10		Between 20.30m - 20.41m. non-intact, recovered as angular to subangular fine to coarse gravel. Between 20.80m - 21.00m. discontinuity subvertical inclined stepped, rough with occasional gypsum veins up to (1mm thick) Between 21.00m - 21.30m. assumed zone of core loss.			
		21.00 - 22.50	14.30	80 67	0	AZCL >25 NI	Very strong dark grey SILTSTONE with many subhorizontal (15 degrees) black carbonaceous lenses up to (2mm thick). Discontinuities are subhorizontal (15 degrees) very closely and closely spaced, plannar, stepped, rough.	Between 21.30m - 21.70m. discontinuities very closely spaced.	21.70		-18.66
		22.50 - 24.00	14.30	100 90	27	10		Between 21.70m - 21.80m. non-intact, recovered as angular to subangular fine to coarse gravel. Between 22.40m - 22.50m, discontinuity subvertical (80 degrees) stepped, rough with occasional gypsum up to (1mm thick) on surface. Between 23.10m - 23.30m, discontinuity inclined (40-60 degrees) stepped, rough and clean.			
23.35 - 23.48	C										
		24.00 - 24.70	14.30	89 61	43	NI 7	Very strong grey SILTSTONE. Discontinuities are subhorizontal (0-15 degrees) closely spaced, stepped, rough and clean.	At 23.90m. discontinuity inclined (70 degrees) plannar, rough and clean. Between 24.00m - 24.27m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 24.50m - 24.70m. discontinuity closely spaced subvertical (80-90 degrees) undulating, rough with gypsum vein up to (2mm thick).	23.70		-20.66
		24.70 - 25.50	14.30	100 75	0	NI 10 NI 13		Between 24.70m - 24.80m and 25.00m - 25.40m. non-intact, recovered as angular to subangular fine to coarse gravel. Between 25.55m - 25.65m, discontinuity inclined (45-60 degrees) plannar, rough and clean. Between 25.60m - 27.00m driller noted traces of coal. Between 25.65m - 25.75m, non-intact, recovered as angular to subangular fine to coarse gravel.	25.84		-22.80
		25.50 - 27.00	14.30	96 73	17	0 NI >25	Medium strong dark grey SILTSTONE with many subhorizontal black carbonaceous lenses up to (2mm thick). Discontinuities are predominantly subhorizontal (15 degrees) very closely spaced, plannar, rough and clean.		26.75		-23.72
26.40 - 26.50	C										
27.00 - 27.26	C	27.00 - 28.50	14.30	100 83	33	8 NI	Very strong dark grey SILTSTONE. Discontinuity is closely spaced, stepped, rough and clean.	Between 25.84m - 25.93m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 26.90m - 27.00m, discontinuity inclined (60 degrees) stepped, rough and clean. Between 27.65m - 28.00m. discontinuity inclined (70-80 degrees) stepped, rough and clean. Between 28.00m - 28.20m, discontinuities inclined (80-90 degrees), stepped, rough and clean. Between 28.24m - 28.30m, non-intact, recovered as angular to subangular fine to coarse gravel.			
		28.50 - 30.00	14.30	100 80	20	10 NI					

Boring

Depth	Hole Dia.	Technique	Crew

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
14.30	14.30	0.00	03/09/24	08:00
21.00	14.30	1.60	03/09/24	17:00
21.00	14.30	-0.80	04/09/24	08:00
34.50	14.30	1.20	04/09/24	17:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		30.00 - 31.50	14.30	100 99	37			Between 28.40m - 28.50m, discontinuity inclined (70 degrees) stepped, rough and clean. Between 28.80m - 28.90m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 29.10m - 29.20m and 29.52m - 29.60m. discontinuities inclined (45-60 degrees) plannar, rough and clean.			
30.40 - 30.57	C										
		31.50 - 33.00	14.30	100 99	30	8		At 31.60m, discontinuity inclined (45 degrees) stepped, rough. Between 31.75m - 31.80m, discontinuity inclined (60 degrees) stepped, rough and clean. Between 31.90m - 32.00m, discontinuity inclined (70 degrees) stepped, rough. Between 32.25m - 32.55m, discontinuity inclined (50-60 degrees) stepped, rough and clean.			
		33.00 - 34.50	14.30	100 90	22	NI 12 NI		At 32.35m, discontinuity inclined at (80 degrees) stepped, rough and clean. Between 32.56m - 32.65m, discontinuity inclined (60-70 degrees) stepped, rough and clean.			
34.03 - 34.22	C					7					
34.50 - 34.77	C	34.50 - 36.00	14.30	97 73	45		Weak to medium strong dark grey MUDSTONE. Discontinuities are subhorizontal (0-15 degrees) closely spaced, stepped, rough and clean.	At 32.65m and 33.20m discontinuity inclined (40-50 degrees) stepped, rough and clean. Between 33.35m - 33.42m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 33.58m - 33.64m, 33.66m - 33.71m, non-intact, recovered as angular to subangular fine to coarse gravel. At 33.76m, discontinuity inclined (40-60 degrees) stepped, rough. Between 33.88m - 33.96m, discontinuities inclined (20 degrees) closely spaced, plannar, rough and clean.	34.50		-31.46
34.91 - 35.00	C					NI 8 NI					
						6	Medium strong to strong grey SILTSTONE with occasional very strong ironstone nodules (up to 80mm in diameter) Discontinuities are subhorizontal, closely spaced rough and clean.		35.40		-32.36
		36.00 - 37.50	14.30	93 73	15	AZCL 7 NI 0 NI		Between 35.00m - 35.10m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 35.22m - 35.32m, non-intact, recovered as angular to subangular fine to coarse gravel.			
						8					
		37.50 - 39.00	14.30	100 87	53			Between 36.00m - 36.10m, assumed zone core loss. Between 36.40m - 36.48m, non-intact, recovered as angular to subangular fine to coarse of gravel and ironstone cobble. At 36.40m and 36.55m, very strong ironstone nodules up to (80mm in diameter). Between 26.53m - 36.63m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 36.58m - 36.65m. becoming very weak and dark			
38.00 - 38.25	C										
38.12 - 38.24	C					NI					
38.74 - 38.92	C					6					
		39.00 - 40.50	14.30	60 0	0	AZCL	Extremely weak dark grey MUDSTONE with rare very strong itonstone nodules. Recovered as angular to subangular fine to coarse gravel and cobbles.		39.00		-35.97

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				34.50	14.30	-0.65	05/09/24	08:00						
				43.50	14.30	1.20	05/09/24	10:04						
				43.50	14.30	-0.90	06/09/24	08:00						
				49.50	14.30		06/09/24	17:00						

Remarks

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All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion and Rotary*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378581.1 E 186340.3 N	**Borehole**	BH109
				Ground Level	3.04 m OD

Scale 1:50

Sampling/Testing		Drilling					Strata				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		39.00 - 40.50	14.30	60 0	0	NI		grey. At 37.20m, very strong ironstone nodule. Between 38.10m - 38.22m, very strong ironstone. Between 38.22m - 32.33m, non-intact, recovered as angular to subangular fine to coarse gravel.			
		40.50 - 42.00	14.30	73 33	7	19 NI					
						7	Medium strong to strong black carbonaceous SILSTONE. Discontinuities are subhorizontal closely and medium spaced, plannar, smooth and clean.	Between 39.00m - 39.60m, assumed zone of core loss. Between 39.60m - 40.40m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 40.40m - 40.66m, siltstone layer.. Between 40.66m - 41.18m, non-intact, recovered as angular to subangular fine to coarse gravel.	41.18		-38.15
42.03 - 42.16	C	42.00 - 43.50	14.30	80 47	25	NI	Weak black COAL. recovered as angular to subangular fine to coarse gravel with pyrite crystals		42.55		-39.52
						3	Weak to medium strong light grey MUDSTONE. Discontinuities are subhorizontal (0-15 degrees) closely and medium spaced, stepped.	Between 42.80m - 43.50m, non-intact, recovered as angular to subangular fine to coarse gravel.	42.80		-39.76
		43.50 - 45.00	14.30	100 90	73				44.30		-41.26
						NI	Medium strong to strong grey SILTSTONE with rare very strong light grey ironstone nodules. Discontinuities are subhorizontal (0-15 degrees) closely and medium spaced stepped, rough and clean.	Between 44.62m - 44.75m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 44.75m - 44.90m and 45.00m - 45.10m, discontinuities inclined (40-60 degrees) stepped, rough and clean. Between 45.00m - 45.30m, discontinuities inclined (60-80 degrees) undulating, rough and clean.			
		45.00 - 46.50	14.30	100 90	50				45.50		-42.46
						7	Very weak to weak dark grey MUDSTONE with occasional very strong ironstone nodules. Discontinuities are closely spaced plannar, smooth and clean.				
		46.50 - 48.00	14.30	100 73	17						
		48.00 - 49.50	14.30	93 87	21	AZCL 12 NI 1 NI 2					
								End of Borehole	49.50		-46.46

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure

05/02/2025

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378577.5 E 186301.0 N	**Borehole**	BH110
				Ground Level	3.07 m OD

Scale 1:50

Sampling Depth	Sample Type	Depth Cased & (to Water)	Properties Results	SPT N	Strata Description	Depth	Legend	Level (m OD)
0.10 - 0.40	B				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.25	D							
0.25	ES				Very soft blueish grey slightly sandy CLAY.	0.40		2.67
0.25			PID: <0.1 ppm					
0.25	HV		10/16/11 kPa					
0.50	D							
0.50	ES							
0.50 - 1.00	B							
0.50			PID: <0.1 ppm					
0.50	HV		38/39/40 kPa		Spongy dark brown fiberous PEAT.	1.30		1.77
1.00	D							
1.00	ES							
1.00			PID: 0.10 ppm					
1.20 - 1.65		1.20 (0.00)		S0*/ 450mm				
1.20 - 1.65	D							
1.30 - 2.50	B							
2.00	D							
2.50 - 2.95		2.50		S0*/				
2.50 - 2.95	D	(DRY)		450mm				
2.50 - 3.50	B							
3.00	D		w: 473 %					
3.50	UT	3.50 (DRY)	3 blows					
3.50 - 4.50	B		w: 611 %					
3.95 - 4.10	D							
4.30	D		w: 600 %		Below 4.30m: becoming slightly clayey fiberous peat.			
4.50 - 4.95		4.50		S0*/				
4.50 - 4.95	D	(DRY)		450mm				
5.10 - 5.60	B				Stiff to very stiff greyish brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and quartzite.	5.10		-2.03
5.30	D		w: 10 %					
5.50 - 6.60	B							
5.60 - 6.60	B				Medium dense greyish brown slightly sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite,	5.60		-2.53
5.70 - 6.15		5.70		S31				
6.00	D							
6.60 - 7.05		6.60 (1.90)		S26				
6.60 - 7.50	B							
7.00	D							
7.50 - 7.95		7.50 (2.10)		C15				
7.60 - 8.80	B				Stiff grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and quartzite.	7.60		-4.53
8.50	D		w: 16 %					
8.80 - 9.25		8.80 (7.10)		S30				
8.80	D							
9.00 - 10.00	B							
9.50	D							
10.00 - 10.45	UT	8.80 (8.00)	54 blows w: 17 %					

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
12.22	0.20	Cable Percussion	MR/TS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			10/09/24	08:00
12.05	8.80	11.20	10/09/24	17:00
12.05	8.80	-0.46	11/09/24	08:00
12.22	8.80	-0.12	11/09/24	09:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.00		0.00	20		
6.00	6.00	1.90	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Groundwater noted as artesian at 6.10m.
Chiselling 12.00 - 12.10m 30mins and 12.10 - 12.20m 30 mins.

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Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378577.5 E 186301.0 N	**Borehole**	BH110
				Ground Level	3.07 m OD

Scale 1:50

Sampling			Properties	Strata				
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.45 - 10.60	D							
11.00 - 12.00	B							
11.50 - 11.95		8.80 (10.30)		S32				
11.50	D							
11.50 - 11.95	D					11.90		-8.83
12.00 - 12.20	D				Weak dark grey fine grained SANDSTONE. Recovered as angular fine to coarse gravel.			
12.05 - 12.07		8.80 (11.20)		S50/ 10mm		12.20		-9.13
12.05 - 12.06	D				End of Borehole			

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by SI

Figure Sheet 2 of 2

05/02/2025

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378625.1 E 186324.6 N	**Borehole**	BH111
				Ground Level	3.03 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.25	D				TOPSOIL: Grass over very soft dark brown slightly sandy organic clay with occasional rootlets and roots up to 20mm in diameter.			
0.25	ES					0.40		2.63
0.25			PID: <0.1 ppm		Very soft bluish grey slightly sandy CLAY with occasional pockets up to 15mm in size of peat.			
0.25	HV		12/10/13 kPa					
0.40 - 1.20	B							
0.50	D		w: 40 %					
0.50	ES							
0.50			PID: <0.1 ppm			1.30		1.73
0.50	HV		18/19/17 kPa		Spongy dark brown fiberous PEAT.			
1.00	D							
1.00	ES							
1.00			PID: <0.1 ppm					
1.20 - 1.65		1.20 (0.00)		S0*/ 450mm				
1.20	D							
1.30 - 2.50	B							
2.00	D							
2.50 - 2.95		2.50 (1.80)		S0*/ 450mm				
2.50 - 3.50	B							
3.00	D							
3.50 - 3.95		3.50 (2.10)		S0*/ 450mm		3.50		-0.47
3.50	D				Very soft bluish grey CLAY with large pockets up to 100mm in size of peat.			
3.50 - 4.50	B							
4.00	D							
4.50 - 4.95		4.50 (3.30)		S2				
4.50	D					4.80		-1.77
4.80 - 5.50	B				Stiff dark grey slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of sandstone.			
5.00	D		w: 22 %					
5.80 - 6.25		5.80 (4.90)		C21	Medium dense brownish grey slightly sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone and quartzite.	5.80		-2.77
5.80 - 6.00	D					6.00		-2.97
5.80 - 6.50	D				Stiff to very stiff brownish grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone and quartzite.			
6.00 - 7.00	B							
6.60	D							
7.20 - 7.65		7.20 (DRY)		S35				
7.20	D							
7.20 - 8.50	B							
8.00	D		w: 17 %					
8.50	UT	7.30 (DRY`)	59 blows w: 11 %					
8.95 - 9.10	D							
9.00 - 10.00	B							
9.50	D							
10.00 - 10.45		7.30 (DRY)		S32				

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/SS
14.29	0.20	Cable Percussion	MR/SS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			16/09/24	08:00
14.29	7.30	DRY	16/09/24	17:00
14.29	7.30	0.00	17/09/24	08:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.00		0.00	20		
5.80	5.80	4.90	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiselling 13.80 -14.00m 30mins.
53mm standpipe installed GL to 1.00m plain pipe, 1.00m to 4.50m bgl slotted pipe, 4.50m to base bentonite backfill.

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Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH111
Client	National Grid	**National Grid Coordinates**	378625.1 E 186324.6 N	**Ground Level**	3.03 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.00	D							
10.50 - 11.50	B							
11.00	D		w: 11 %					
11.50 - 11.95	UT	7.30 (DRY)	61 blows w: 11 %					
11.95 - 12.10	D							
12.30 - 13.00	B				Extremely weak grey MUDSTONE, recovered as gravel.	12.30		-9.27
12.50	D							
13.00 - 13.37		7.30 (DRY)		S50/ 220mm				
13.00 - 13.37	D							
13.00 - 14.00	B							
13.50	D							
14.00 - 14.29		7.30 (DRY)		S50/ 145mm				
14.00	D				End of Borehole	14.29		-11.26

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

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Figure Sheet 2 of 2

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GEOTECHNICS

BOREHOLE RECORD - *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
Client	National Grid	**National Grid Coordinates**	378640.5 E 186097.3 N	**Borehole**	BH112
				Ground Level	3.57 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.30	B				TOPSOIL: Grass over very soft dark brown slightly sandy clay with occasional rootlets and many roots (up to 15mm in diameter).			
0.25	D					0.30		3.27
0.25	ES				Soft brown mottled grey slightly sandy CLAY with occasional rootlets.			
0.25			PID: <0.1 ppm					
0.25	HV		18/15/16 kPa			0.70		2.87
0.30 - 0.70	B				Soft to firm brownish grey slightly sandy CLAY with rare rootlets.			
0.50	D							
0.50	ES							
0.50			PID: <0.1 ppm					
0.50	HV		39/40/39 kPa					
0.70 - 1.20	B					1.60		1.97
1.00	D		w: 39 %		Very soft bluish grey and brown slightly sandy CLAY.			
1.00	ES							
1.00			PID: <0.1 ppm					
1.20 - 1.65	UT	1.20 (0.80)	6 blows			2.30		1.27
1.60 - 2.30	B				Very soft grey slightly sandy organic CLAY with many pockets (up to 80mm in size) of peat.			
1.65 - 1.80	D							
2.00	D		w: 56 %					
2.30 - 2.75		2.30 (1.30)		S1				
2.30 - 2.75	D							
2.30 - 3.20	B							
3.00	D							
3.20 - 3.65		3.20 (3.20)		S0*/ 450mm				
3.20 - 3.65	D							
3.20 - 4.50	B							
4.00	D							
4.50	EW							
4.50 - 4.65	UT	4.50 (4.30)	7 blows					
4.50 - 5.50	B							
5.20	D		w: 230 %					
5.50 - 5.95		5.50 (5.30)		S6				
5.50 - 5.95	D							
5.80 - 6.10	D							
6.10 - 6.50	B				Very soft dark grey sandy organic CLAY.	6.10		-2.53
6.30	D							
6.50 - 6.95		6.50 (6.50)		S0*/ 450mm				
6.50 - 6.95	D							
6.50 - 7.30	B							
7.10	D		w: 31 %					
7.40	D				Dense brown sandy GRAVEL with a low cobble content of subangular sandstone and quartzite. Gravel is subangular to subrounded fine to coarse sandstone and quartzite.	7.30		-3.73
7.50 - 7.95		7.50 (1.00)		C43				
7.50 - 8.50	B							
8.00	D							
8.50 - 8.95		8.50 (0.10)		C17	At 8.50m, medium dense.			
8.50 - 9.20	B							
9.00	D							
9.30	D					9.30		-5.73
9.40 - 9.85		9.40 (4.10)		S24	Stiff dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.			
9.40 - 9.85	D							
10.00 - 11.00	B							

Boring

Depth	Hole Dia.	Technique	Crew
1.20	0.30	Inspection Pit	MR/TS
14.46	0.20	Cable Percussion	MR/TS

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
0.00			22/08/24	08:00
12.50	9.50	DRY	22/08/24	18:00
12.50	9.50	8.10	27/08/24	08:00
14.46	9.50	12.40	27/08/24	12:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.80		0.60	20		Fast inflow.
7.50	7.50	1.00	20		

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1 litre plastic tub.
Chiselling 14.20m - 14.40m 30mins. 50mm standpipe - slotted 1.00m - 6.00m with raised cover.
Backfill: Bentonite 6.00m - 14.00m, gravel filter 1.00m - 6.00m, Bentonite seal 0.30m - 1.00m, concrete GL - 0.30m.

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Figure Sheet 1 of 2

05/02/2025

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

GEOTECHNICS

BOREHOLE RECORD **-** *Cable Percussion*

Project	National Grid - 101677 Margam TATA Steel Connection	**Engineer**	Baker Hicks	**Project No.**	PC248745 - Phase 1
				Borehole	BH112
Client	National Grid	**National Grid Coordinates**	378640.5 E 186097.3 N	**Ground Level**	3.57 m OD

Sampling			Properties		Strata			Scale 1:50
Depth	Sample Type	Depth Cased & (to Water)	Results	SPT N	Description	Depth	Legend	Level (m OD)
10.50	D							
11.00 - 11.45		9.50 (DRY)		S24				
11.00 - 11.45	D							
11.50 - 12.50	B							
12.00	D		w: 14 %					
12.50 - 12.95		9.50 (DRY)		S31				
12.50 - 12.95	D							
12.50 - 13.10	B							
12.80	D				Extremely weak grey MUDSTONE, recovered as angular to subangular fine to coarse gravel.	13.10		-9.53
13.10 - 14.00	B							
13.50	D							
14.00 - 14.17		9.50 (12.30)		S50/ 50mm				
14.00 - 14.17	D							
14.20	D				End of Borehole	14.46		-10.89
14.40 - 14.46		9.50 (12.40)		S50/ 20mm				
14.40 - 14.46	D							

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbrevations are explained on the accompanying key sheets.
All dimensions are in metres.

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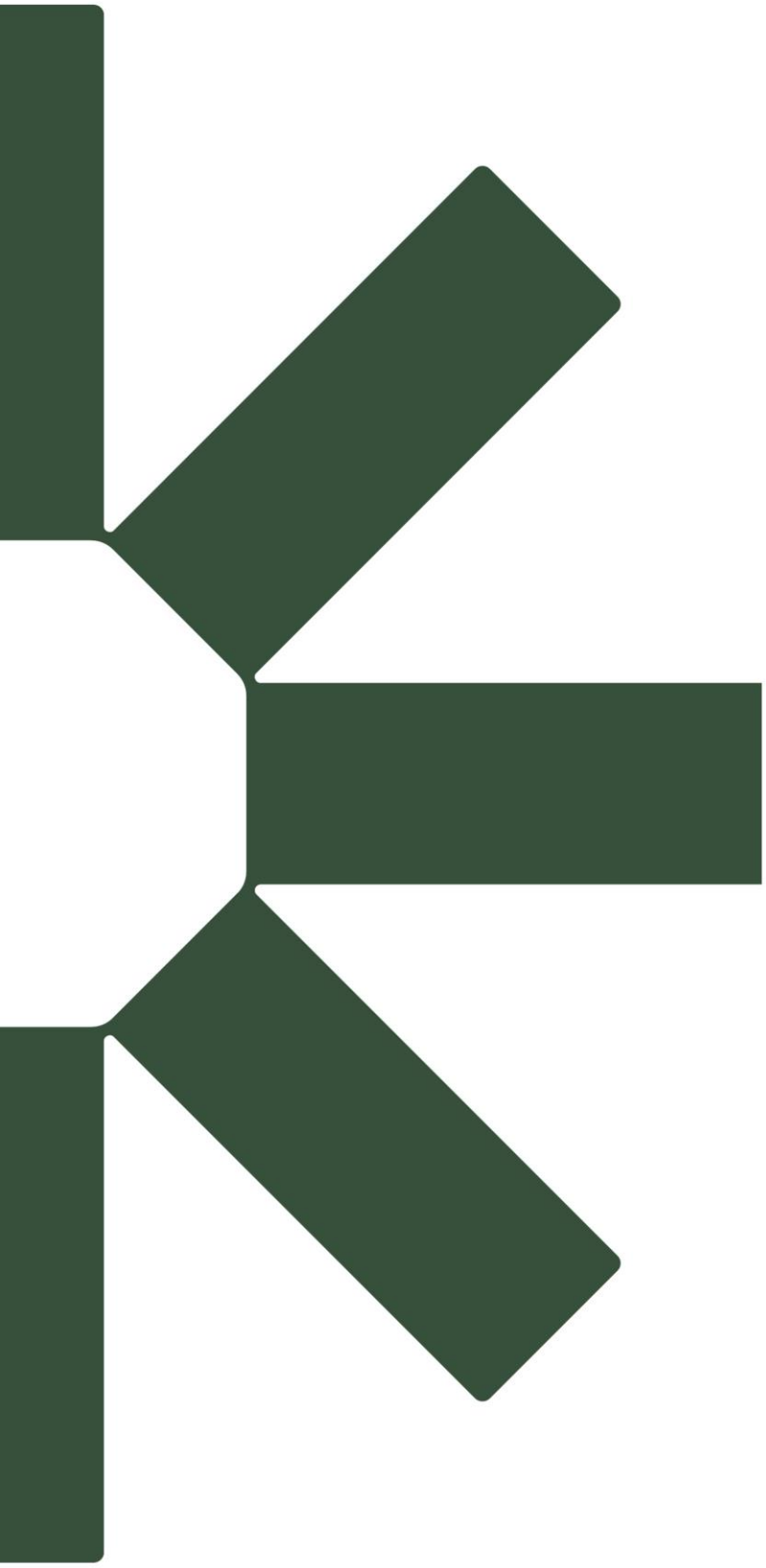
Figure

05/02/2025

GEOTECHNICS



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