



REAP 3 Limited

Plots 4 and 5, Central Square, City Centre, Cardiff

Phase 1 Ground Conditions Desk Study





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1 Introduction

1.1 Introduction and background

This report has been prepared in support of the detailed planning application being submitted by REAP 3 Limited ('the Applicant') to Cardiff Council ('the Council') in support of a full planning application for the development of Plots 4 and 5, Central Square, City Centre, Cardiff ('the site').

This application seeks full planning permission for the following description of development:

"Mixed-use development to provide residential accommodation, flexible non-residential uses, cycle parking, landscaping and other associated works"

The site sits at the heart of the wider 'Central Square' regeneration area in Cardiff City Centre. Central Square is a strategically important area which the Council consider to be a gateway to the City, and an opportunity to showcase the best that Cardiff has to offer. Given the strategic importance of the location, the Council envisage that the regeneration of Central Square, towards which this development will contribute significantly, will play a key role in attracting investment on other strategically important development sites in the City.

The proposed development provides the opportunity to make a significant positive contribution to the ongoing regeneration to this part of Cardiff. The proposed development will build upon the success of the wider Central Square area, proposing a development of exceptional architectural and residential quality. The Applicant is fully committed to the delivery of the site, and it is their ambition to create a new iconic landmark for Cardiff and Wales.

As well as the delivery of much needed high-quality homes to address the Council's housing need, the proposed development brings with it a wide range of enhanced planning and public benefits. The benefits include the delivery of a strategically important City Centre site, new flexible non-residential floorspace that will activate Central Square, a publicly accessible bike hub and cafe, a new pavilion building that can accommodate a restaurant, extensive public realm landscaping in and around the buildings, highly sustainable and energy efficient buildings, and other significant economic and social benefits for the City.

1.2 Site Description

The site sits within the administrative area of Cardiff Council ('the Council'), who are the relevant Local Planning Authority when determining any planning applications on the site.

The site is 0.21ha and comprises a cleared rectangular plot of land, alongside two smaller parcels of land located to the north of Wood Street within the public realm (these smaller parcels will accommodate public cycle parking spaces). The site is bound by Wood Street to the south, Scott Road to the west, Rose Lane to the north-west and Park Street further north, and a public square to the east. The site was formerly occupied by St David's House, until it was demolished in late 2018.

The site benefits from full planning permission for the following development (Ref: 21/02984/MJR), which was granted by the Council on 2nd May 2024:

‘Full planning application for a mixed-use building providing commercial uses at ground floor/mezzanine level (Use Classes A1/A2/A3/B1/D1/D2) and residential accommodation above (Use Class C3 and including non C3 Use Class residential), a pavilion (Use Classes A1/A2/A3), public realm, cycle parking, access, drainage and other infrastructure works required for the delivery of Central Square Plots 4 and 5.’

The site sits within the Cardiff Central Square Masterplan area. Whilst this masterplan was never formally adopted, it has catalysed significant development and has led to the transformation of the area in and around Cardiff Central Station. The prevailing building heights ranges between 7 to 25 storeys, which includes buildings of a variety of land uses and architectural styles.

The Media Wales office building is located at 6 Park Street, immediately adjacent to the north-west of the site. The HMRC building is located immediately adjacent to the north-east of the site. The Millennium Plaza leisure complex is located immediately to the west. To the south cross Wood Street lies the Cardiff University School of Journalism, Media and Culture, and the BBC Cymru building. The Principality Stadium is located further to the north and can be accessed via Central Square.

The Site is not within a Conservation Area and does not include any Listed Buildings. The Natural Resources Wales (‘NRW’) Flood Map for Planning (‘FMfP’) identifies the site to be at risk of flooding and falls into Flood Zone 3 (Rivers and Sea) (albeit located in a ‘TAN15 defended zone’)

The site is very well connected by public transport. Cardiff Central Station is within a short walking distance (0.1 miles / 2-minutes’ walk). Cardiff Central provides connections to a wide range of locations, including Newport in 13 minutes and Cheltenham Spa in approximately an hour. Adjacent to the site is Wood Street bus stop, with further bus stops along St Mary Street, approximately 2-minutes’ walk from the site.

1.3 Purpose of Report

This report provides a reliability statement about the suitability of the site ground conditions for the proposed development based on the site investigations referenced in section 2 forming part of the previous planning application (Ref: 21/02984/MJR).

2 Ground Conditions Reliability Statement

2.1 Description of development and overview of the proposed development

The description of the proposed development is as follows:

“Mixed-use development to provide residential accommodation, flexible non-residential uses, cycle parking, landscaping and other associated works”

In summary, this application is seeking to deliver the following:

- A landmark **50** storey building with a maximum height of up to **177.85m AOD**.
- **528 new homes (Class C3)** comprising a mix of **1-bed and 2-beds**.
- A pavilion building within Central Square comprising up to **601sqm of flexible non-residential floorspace (flexible Class A1 and A3)**.
- **2,856.5qm** of high quality internal and external amenity space through provision of roof terraces, lounges, coworking, gym and other wellbeing spaces.
- A basement level providing ancillary residential floorspace.
- A car free development with **528 cycle parking spaces within proposed building**, including 5% accessible spaces, and a publicly accessible bike hub and café. Additionally, 52 public cycle spaces are provided within adjacent square provided as Sheffield stands.

2.1.1 Structural Form of proposed development

A 50-storey high-rise tower and a low-rise Pavilion Building sit over a single-storey basement box. The River Taff lies a little to the west of the site and drains into Cardiff Bay to the south of the site.

The structural form of the high-rise tower considers a reinforced concrete (RC) frame comprising two RC cores forming the lift shafts and escape stairs, RC columns and RC floor slabs. Building stability to resist lateral loads is provided by the floor slabs acting as diaphragms that transfer loads to the two RC cores supported off a piled raft slab.

2.1.2 Geotechnical review of existing ground conditions

Existing desk study and site investigation information is available for the site, and this is reported in the following documents.

- Phase 1 Desk Study Report - Plot 4 & 5, Central Square, Cardiff – Ref 21209 – Jubb – dated 16 Dec 2021
- Site A, Plot 5 Central Square, Cardiff - Site Investigation Report – Ref 14062/LW/22/SI/A – Integral Geotechnique – dated Nov. 2022

The Desk Study does not identify any constraints to the development, with the site occupied by housing historically, and more recently a car park. It recommends that a development specific site investigation is undertaken, and further targeted studies will be undertaken post determination.

The site investigation has identified Made Ground to overlie Tidal Flat Deposits, River Terrace Deposits (Gravels) and the Mercia Mudstone – these ground conditions are typical of this area of Cardiff and a cross section through the exploratory holes is presented in Figure 1 below.

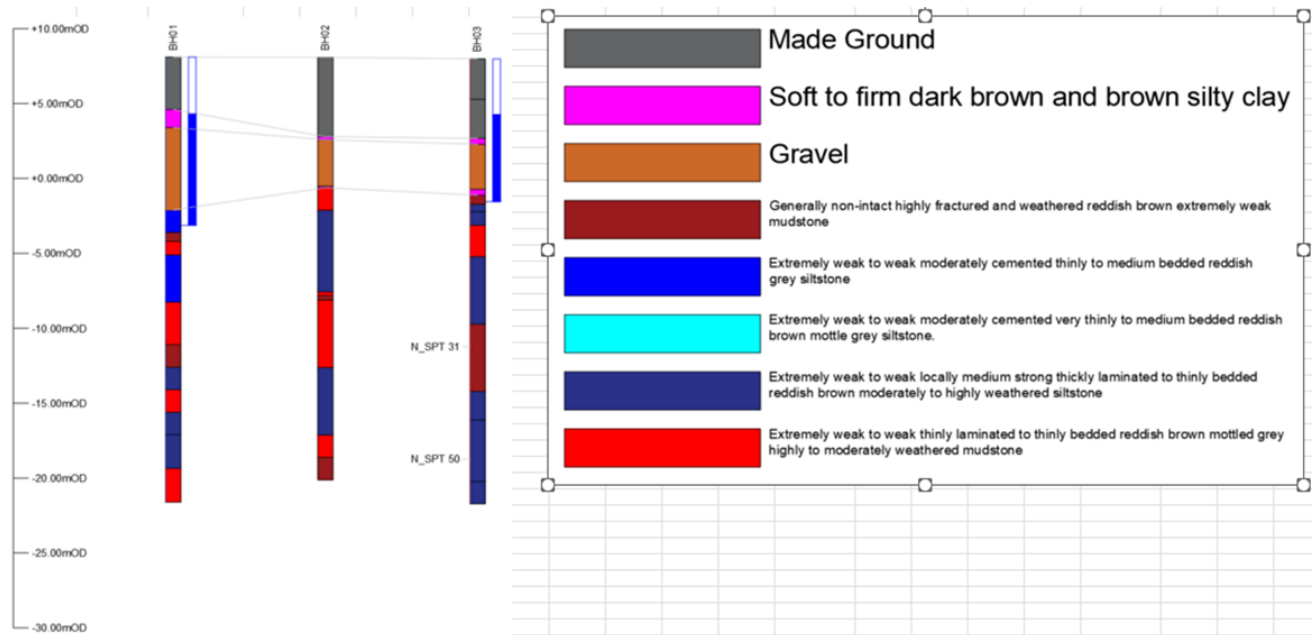


Figure 1 - Ground conditions - cross section

Groundwater monitoring indicates a groundwater elevation of about 4.25mOD – this is about 3.8mbgl. As part of the detailed design, tidal or other seasonal variations will be considered. The information presented does not identify any significant constraints to development. The height and form of the proposed tower are such that piles founding in the Mercia Mudstone will be required to support the development.

The basement box will be constructed within an embedded retaining wall such as a secant pile wall. The embedded retaining wall will be designed to limit deflections and groundwater flow into the excavation and such that the impact of the construction on adjacent third-party assets will be controlled to within acceptable limits.

The design of these will be undertaken by a specialist contractor, and the available information will be supplemented by a development specific ground investigation.

WSP will assess the load settlement characteristics of the piles and pile groups and provide design information to the structures team to facilitate the design in the usual manner. Where required,



ground movement assessments will be undertaken to confirm the impact of the works on third party assets to ensure that the development works cause no unacceptable impacts.



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