

St Pancras Campus,
63 Pratt Street Road NW1 0BY
Detailed Basement Construction Plan
Review

For

London Borough of Camden

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1.0 INTRODUCTION

1.1. CampbellReith was instructed by London Borough of Camden (LBC) to undertake a review of the Detailed Basement Construction Plan (DBCP) submitted by AKT II Consulting Engineers for St Pancras Campus, 63 Pratt Street, London NW1 0BY, planning reference 2019/4201/P. The DBCP is a stipulated requirement of a Section 106 Agreement between Camden Property Holdings Ltd and the London Borough of Camden, dated 24 December 2020.

1.2. The Section 106 Agreement requires the owner to appoint an independent suitably certified engineer (Basement Design Engineer) to formulate the Detailed Basement Construction Plan (DBCP) and use reasonable endeavours to ensure:

- that the design plans have been undertaken in strict accordance with the terms of the Agreement incorporating proper design and review input into the detailed design phase of the Development and ensuring that appropriately conservative modelling relating to the local ground conditions and local water environment and structural condition of the Neighbouring Properties has been incorporated into the final design;
- that the result of these appropriately conservative figures ensure that the Development will be undertaken without any impact on the structural integrity of the Neighbouring Properties beyond Category 1 'very slight' with reference to the Burland Category of Damage;
- that the design plans have been undertaken in accordance with the Agreement, including a letter of professional certification confirming this and that the detailed measures set out in sub-clauses 1.34 (b) (presented below) have been incorporated correctly and appropriately and are sufficient in order to achieve the objectives of the Detailed Basement Construction Plan.

(iv) Reasonable endeavours to access and prepare a detailed structural appraisal and condition survey of all Neighbouring Properties to be undertaken by an independent suitably qualified and experienced chartered surveyor (and for details to be offered if this is not undertaken in full or part).

(v) A method statement detailing the proposed method of ensuring the safety and stability of all Neighbouring Properties throughout the Construction Phase including temporary works sequence drawings and assumptions with appropriate monitoring control risk assessment contingency measures and any other methodologies associated with the basement and the basement temporary works.

(vi) Detailed design drawings incorporating conservative modelling relating to the local ground conditions and local water environment and structural condition of Neighbouring Properties prepared by the Basement Design Engineer for all elements of the groundworks and basement authorised by the Planning Permission together with specifications and supporting calculations for both the temporary and permanent basement construction works.

(vii) The Basement Design Engineer to be retained at the Property throughout the Construction Phase to inspect approve and undertake regular monitoring of both permanent and temporary basement construction works throughout their duration and to ensure compliance with the plans and drawings as approved by the building control body.

(viii) Measures to ensure the on-going maintenance and upkeep of the basement forming part of the relevant phase of the Development and any and all associated drainage and/or ground water diversion measures in order to maintain structural stability of the Property the Neighbouring Properties and the local water environment (surface and groundwater).

(ix) Measures to ensure ground water monitoring equipment and a displacement and vibration monitoring regime shall be installed prior to Implementation and retained with monitoring continuing during the Construction Phase and not to terminate monitoring until the issue of the Certificate of Practical Completion (or other time agreed by the Council in writing).

1.3. The Section 106 Agreement also requires that:

- the Owner appoints a second independent suitably certified engineer (qualified in the fields of geotechnical and/or structural engineering) from a recognised relevant professional body having relevant experience of sub-ground level construction commensurate with the relevant phase of the Development (the Certifying Engineer) and for details of the appointment of the Certifying Engineer to be submitted to the Council for written approval in advance;
- the Certifying Engineer reviews the design plans and offers a 2 page review report to the Council confirming the design plans have been formulated in strict accordance with the terms of this Agreement and have appropriately and correctly incorporated the provisions of sub-clauses (i) – (ix) and are sufficient to achieve the objectives of the Detailed Basement Construction Plan AND should any omissions, errors or discrepancies be raised by the Certifying Engineer then these to be clearly outlined in the report and thereafter be raised directly with the Basement Design Engineer with a view to addressing these matters in the revised design plans;
- A letter of professional certification from the Certifying Engineer with the DBCP confirming that it is in an approved form and has been formulated in strict accordance with the S106 agreement shall be submitted.

- 1.4. The applicant is also required to meet the requirements of clause 1.34 (f) of the Section 106 Agreement and to answer any queries raised by LBC.
- 1.5. This report covers our review of the DBCP information submitted by AKT II Ltd in response to the Section 106 Agreement, which comprises the following:
 - Detailed Basement Construction Plan by AKT II, reference 4409, Rev 02 dated 07-06-2021 and listed Appendices 0-9.
 - AKT II Letter of Professional Certification dated 11-06-2021
 - Certifying Engineer's Report by Elliott Wood reference 2210155 Rev P1 dated 09-06-2021

2.0 BASEMENT CONSTRUCTION PLAN REVIEW

The following information has been reviewed and found to comply with the requirements of the Section 106 Agreement where indicated below.

<p>Condition Surveys</p> <ul style="list-style-type: none"> Plan drawing showing extent of condition surveys Photographic and descriptive record of existing conditions Condition Survey to be carried out by third party independent of the design and contractor team to be carried out prior to commencement of works. 	<p>X</p> <p>X</p> <p>✓</p>
<p>GMA Report</p> <ul style="list-style-type: none"> Ground movement assessment using appropriately conservative modelling Building damage assessment Damage no worse than "Slight" according to Burland Category of Damage 	<p>✓</p> <p>✓</p> <p>✓</p>
<p>Movement Monitoring Proposals including drawings & specification to include:</p> <ul style="list-style-type: none"> The trigger and action levels for horizontal, vertical and tilt movements Monitoring targets to be indicated on the elevation drawings The monitoring frequency 	<p>✓</p> <p>X</p> <p>✓</p>
<p>Temporary and Permanent works proposals</p> <ul style="list-style-type: none"> Method statement for basement works throughout construction phase including temporary works drawings, monitoring measures and contingency measures Detailed design drawings for all elements of groundworks and basement with specifications and supporting calculations for temporary and permanent case Measures for ongoing maintenance including groundwater monitoring and construction traffic Measures to monitor groundwater until issue of Practical Completion Certificate 	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
<p>Engineering review</p> <ul style="list-style-type: none"> Confirmation of suitably qualified Basement Design Engineer Confirmation of Temporary Works Engineer professional qualifications Basement Design Engineers certification that the DBCP is formulated in accordance with the Section 106 Agreement 	<p>✓</p> <p>X</p> <p>✓</p>

<ul style="list-style-type: none">• Provision to retain the Basement Design Engineer throughout the Construction Phase• Details of review by suitably qualified and experienced certifying engineer who is independent of the design team• Evidence of comments raised by certifying engineer on design and review of calculations• Certifying Engineers Report confirming BCP is in accordance with Section 106 Agreement	<div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div>
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3.0 DISCUSSION

- 3.1. The following comments apply to the DBCP for the St Pancras Campus, 63 Pratt Street development.
- 3.2. The DBCP is produced by AKT II Consulting Engineers on behalf of Camden Property Holdings Ltd. AKT II is the Basement Design Engineer; temporary works designs are provided by John F Hunt Ltd.
- 3.3. Professional qualifications are contained in Appendix 0 for the AKT II Basement Design Engineers as Gerry O'Brien BEng (hons) CEng FICE PrEng who is a suitably qualified chartered engineer.
- 3.4. It is confirmed that AKT II will be retained throughout the construction stage and their duties include regular monitoring of both permanent and temporary basement construction works.
- 3.5. A letter of professional certification from AKT II regarding Temporary and Permanent designs dated 10 June 2021 is included in the submission.
- 3.6. Professional qualifications for the Temporary Works Design Engineers are not provided in the DBCP, and should be.
- 3.7. The proposed development contains a deep single storey basement over the entire footprint of the site, the excavation depth is approximately 6.3m to the formation level. The basement is to be supported via a secant piled wall to the perimeter with a reinforced concrete lining wall internally.
- 3.8. Prior to construction of the secant wall a temporary 6m deep trench will be installed to remove below ground obstructions that may affect the piling operations.
- 3.9. Temporary propping is proposed to the perimeter secant piled wall. Details are provided by John F Hunt Ltd and detailed proposals including construction sequence, drawings and calculations are contained in Appendix 6.
- 3.10. A ground investigation was carried out by Soiltechnics Ltd and findings are contained in their report STS5076, dated November 2020, which is within Appendix 9. Ground conditions are confirmed as Made Ground up to a depth of 5.7m overlying London Clay. Groundwater was encountered within the Made Ground at an approximate depths of 4-5m.
- 3.11. Condition surveys of neighbouring properties are expected to be carried out by an independent chartered surveyor. The DBCP confirms these will be completed prior to commencement on site, however some ambiguity exists in the report in regard to an additional visual survey to be undertaken by the Contractor.
- 3.12. A condition survey of the Thames Water sewers has been undertaken and is contained in Appendix 4.

- 3.13. No condition survey is proposed to the Regents Canal retaining wall, although continuous monitoring of this element has been agreed with the Canal and River Trust.
- 3.14. A Ground Movement Assessment carried out by AKT II is contained in Appendix 02, and summarised in the main text of the DBCP. A number of adjacent buildings have been considered, based upon the worst case scenario of maximum predicted movements or both the temporary trench and the main piling works/basement excavation, and the GMA confirms the damage classification to neighbouring properties as no worse than Burland Category 1: very slight.
- 3.15. Additional Ground Movement Assessments have been prepared by AKT II to predict the effect of movements on the Regents Canal, which is confirmed as Category 0: negligible and the Thames Water sewers and mains infrastructure which indicates the risk of damage to TW assets as 'Low'.
- 3.16. Measures to ensure the on-going maintenance and upkeep of the basement and associated drainage are included in Appendix 8.
- 3.17. Standpipes were installed during the ground investigation in 2019, and rechecked at a second visit, the DNCP confirms the intent to record the groundwater levels throughout the construction phase.
- 3.18. Detailed proposals to monitor movement within the site and on neighbouring buildings including frequency, target values and actions are contained in Appendix 9
- 3.19. Elliott Wood Consulting Engineers are appointed as the independent Certifying Engineer to review the DBCP and a review report has been provided to confirm their review and provide note of AKT II responses to any questions raised.

4.0 CONCLUSIONS

- 4.1. We are generally satisfied that the information provided within the Detailed Basement Construction Plan by AKT II Consulting Engineers supported by the listed additional documents complies with the requirements of the relevant clauses of the Section 106 Agreement.
- 4.2. It is accepted that the professional requirements of the Basement Design Engineer (AKT II) and the Geotechnical Consultants (SL) are in accordance with the requirements of the Section 106 Agreement. The Temporary Works Design Engineer (JFH) have not be confirmed but they are recognized as a reputable engineers in regard to temporary works design.
- 4.3. It is noted that the Basement Design Engineers are to be retained through the construction phase and the appointment includes regular site inspections.
- 4.4. The Ground Movement Assessment contained in the DBCP indicates the anticipated impact on the Neighbouring Properties as no worse than Category 1: very slight with reference to the Burland Category of damage. This complies with the requirements of the S106 Agreement.
- 4.5. The Ground Movement Assessment to Thames Water sewers and mains infrastructure which indicates the risk of damage to TW assets as 'Low'.
- 4.6. Condition surveys of neighbouring properties have not been undertaken to date, however the DBCP confirms these will be completed prior to implementation of the works.
- 4.7. It is accepted the DBCP contains a detailed method statement and phasing of the temporary works proposed to construct the basement, together with a monitoring action plan. Monitoring target locations are not shown in the plan, but may be agreed as part of party wall awards, if not done already.
- 4.8. It is accepted the DBCP contains detailed basement design drawings and structural calculations prepared by the both the Basement Design Engineer and the Temporary Works Engineer.
- 4.9. The DBCP contains reference to the hydrology, and the site investigations confirm the local ground conditions as Made Ground over London Clay Formation. It is accepted the basement should not have any impact on the local water environment and stability of the Neighbouring Buildings.
- 4.10. Formal certification has been provided by both the Basement Design Engineer (AKT II) and the independent Certifying Engineer (EW).

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