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Discharge of Pre-Commencement Planning Condition 12:

Cross-Rail 2 Conceptual Design Submission for Block E1

Project:

The Chocolate Factory, Block E1



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Project No	Rev.	Date	Prepared By	Checked By	Approved By	Status
JPSE25-040	P01	28.08.2026	CD	JP	JP	Pre-Commencement



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1. Executive Summary

This report has been prepared to consider the requirements outlined in the **Crossrail 2 Tunnel Section – Information for Developers** for Block E1 of the Chocolate Factory, Wood Green, London. The report supports the discharge of **Planning Condition 12** and considers the potential interaction between the proposed development and the safeguarded Crossrail 2 infrastructure.

At the time of preparation of this report, the structural design of Block E1 is at a preliminary stage. The proposed foundation arrangement has been developed sufficiently to allow an initial assessment of its relationship with the Crossrail 2 infrastructure; however, the detailed superstructure design, structural drawings and calculations have not yet been finalised. Accordingly, the structural and foundation parameters adopted within this assessment represent conservative preliminary design values and will be reviewed as the design develops.

The assessment considers the following principal matters:

- Loadings from the proposed Block E1 development and the preliminary foundation system.
- The location and assumed depth of the proposed Crossrail 2 running tunnels in relation to Block E1.
- The relationship between the proposed foundation arrangement and the Crossrail 2 safeguarding zones.
- Potential ground movements associated with the future construction of the Crossrail 2 tunnels and their effect on the proposed development.
- Noise and vibration associated with the future operation of Crossrail 2.

The proposed Block E1 development comprises a new mixed-use development incorporating residential and commercial accommodation. The preliminary structural scheme comprises a combination of light gauge steel framing and hot-rolled structural steelwork. The proposed foundation system comprises helical screw piles supporting the proposed ground floor structure. The development does not incorporate a basement.

The proposed Crossrail 2 tunnel alignments have been overlaid onto the current Block E1 site plan using alignment information provided by Transport for London / Crossrail 2. Based on the current overlay, the proposed running tunnel alignments do not pass directly beneath the Block E1 building footprint. The current site plan indicates



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approximate plan distances of **27.0 m and 33.1 m between Block E1 and the respective Crossrail 2 tunnel alignments**. The proposed Block E1 foundations therefore do not directly overlie the proposed running tunnels. The relationship between the proposed foundations and the associated Crossrail 2 safeguarding zones will be considered as part of this assessment.

At the time of preparation of this report, confirmed vertical alignment information for the Crossrail 2 tunnels at the Block E1 site was not available. Following correspondence

with the Crossrail 2 Safeguarding team, an indicative tunnel depth of approximately **25 m below ground level** has been adopted for the purposes of this preliminary assessment.

The preliminary foundation arrangement comprises helical screw piles. For the purposes of this assessment, a **maximum pile length of 12.0 m** and a **maximum preliminary pile reaction of 240 kN (SLS)** have been adopted as conservative upper-bound design parameters. These values provide a preliminary design envelope for assessing the proposed foundations in relation to the safeguarded Crossrail 2 infrastructure while the detailed structural design is being developed.

As the proposed Block E1 foundations do not directly overlie the Crossrail 2 running tunnel alignments, the assessment will principally consider the relationship between the proposed foundation works and the associated safeguarding zones, together with the potential effects of future Crossrail 2 construction-related ground movement on the proposed development.

A preliminary ground movement assessment has been undertaken in accordance with Appendix A of the Crossrail 2 Information for Developers guidance. Using an excavated tunnel diameter of 7.8 m, a conservative tunnel centreline depth of 25.0 m, a volume loss of 1.2% and $K = 0.5$ for London Clay, the combined greenfield vertical settlement at the nearest assessed Block E1 location is approximately 2.3 mm. The subsequent building strain assessment gives a maximum tensile strain of approximately 0.032%, corresponding to Damage Category 0 (Negligible).

A separate Noise and Vibration Assessment prepared for the proposed development should be read in conjunction with this structural assessment.

As the structural design progresses, the preliminary assumptions and design parameters adopted within this report will be reviewed against the developing superstructure and foundation design. Where required, the assessment will be updated to confirm continued compliance with the Crossrail 2 safeguarding requirements.



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2. Introduction

This report has been prepared by JPSE Ltd in support of the discharge of Planning Condition 12 for Block E1 of the Chocolate Factory development, Wood Green, London.

The purpose of this report is to review the potential interaction between the proposed Block E1 development and the safeguarded Crossrail 2 infrastructure. The assessment has been prepared in accordance with the Crossrail 2 Tunnel Section – Information for Developers guidance and is based on the information currently available at preliminary design stage.

The report considers the following objectives:

- To demonstrate that the future construction of Crossrail 2 is not prejudiced by the proposed Block E1 development.
- To demonstrate that the proposed Block E1 development and its foundations can accommodate the potential effects of future Crossrail 2 construction without being adversely affected to an unacceptable degree.
- To demonstrate that the proposed foundation arrangement does not encroach into the applicable Crossrail 2 safeguarding zones.
- To identify any design assumptions, constraints or further information required as the structural design develops.

At the time of preparation of this report, the structural design of Block E1 remains at preliminary stage. The foundation arrangement has been developed sufficiently to allow an initial assessment of the interface with Crossrail 2; however, detailed superstructure design and final structural calculations are still in development. The assessment contained within this report will therefore be reviewed and updated where necessary as the design progresses.



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3. Proposed Development

3.1 Site Layout

The site is located in Wood Green, London N22 6XJ. The main site boundaries are Western Road to the north and Mayes Road and Coburg Road to the east and west respectively, with Clarendon Road providing access from the southwest. The site boundary is indicated by the red line in Figure 1 below. The proposed Block E1 site plan and overall site layout are included in Appendices A and B respectively.

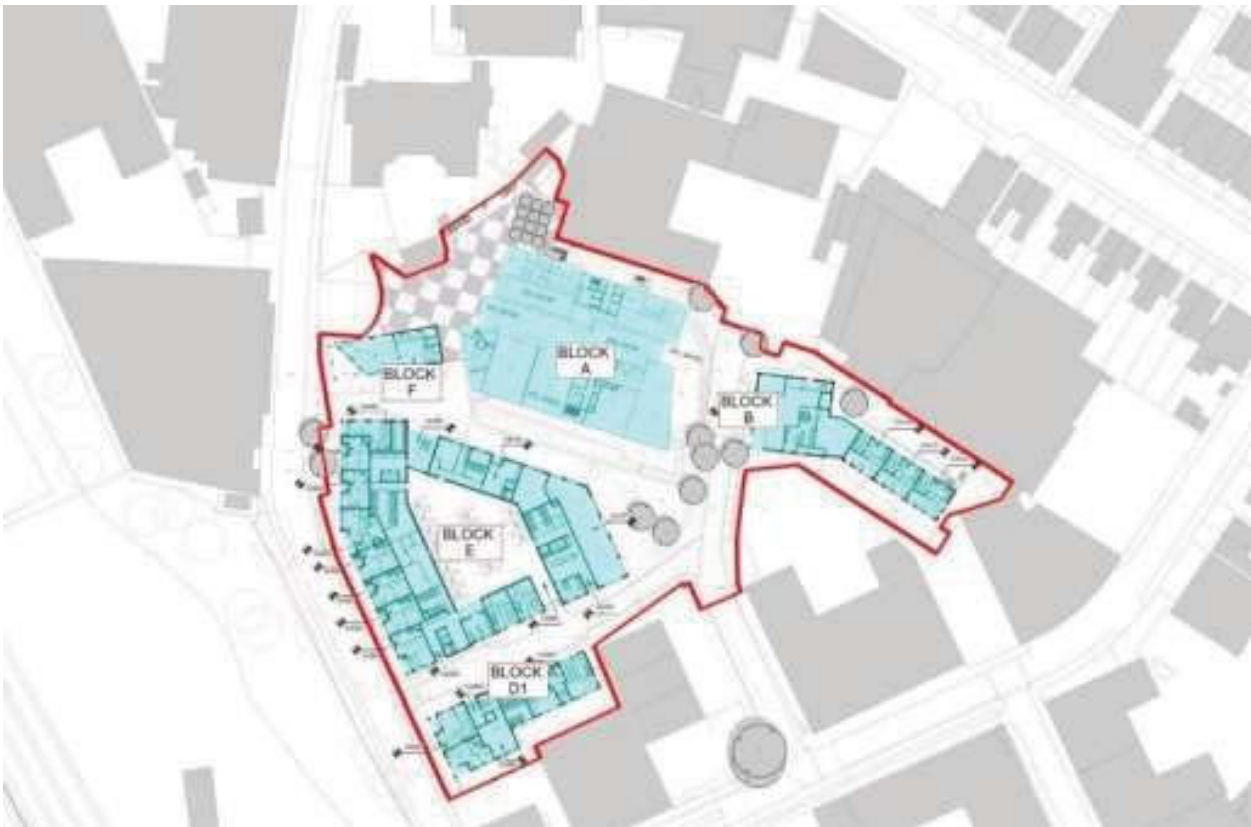


Figure 1 – Site Layout



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3.2 Block E1 Development

Block E1 forms a separate part of the wider Chocolate Factory development and is the subject of this assessment. The proposed development comprises a mixed-use building with commercial accommodation at ground floor level and residential accommodation above.

The building is arranged over multiple storeys, with the current architectural drawings showing ground, first, second, third, fourth and fifth floor levels together with a roof level incorporating communal amenity and green roof areas.

The preliminary structural form comprises a combination of light gauge steel framing and hot-rolled structural steelwork. The proposed foundation concept comprises helical screw piles supporting the ground floor structure, including a reinforced concrete ground floor slab of 250 mm thickness, together with the associated structural elements. The development does not incorporate a basement. The structural design remains at preliminary stage and the final superstructure member sizes, detailed foundation arrangement and final design reactions have not yet been completed. For the purposes of this Crossrail 2 assessment, conservative preliminary foundation parameters have therefore been adopted.

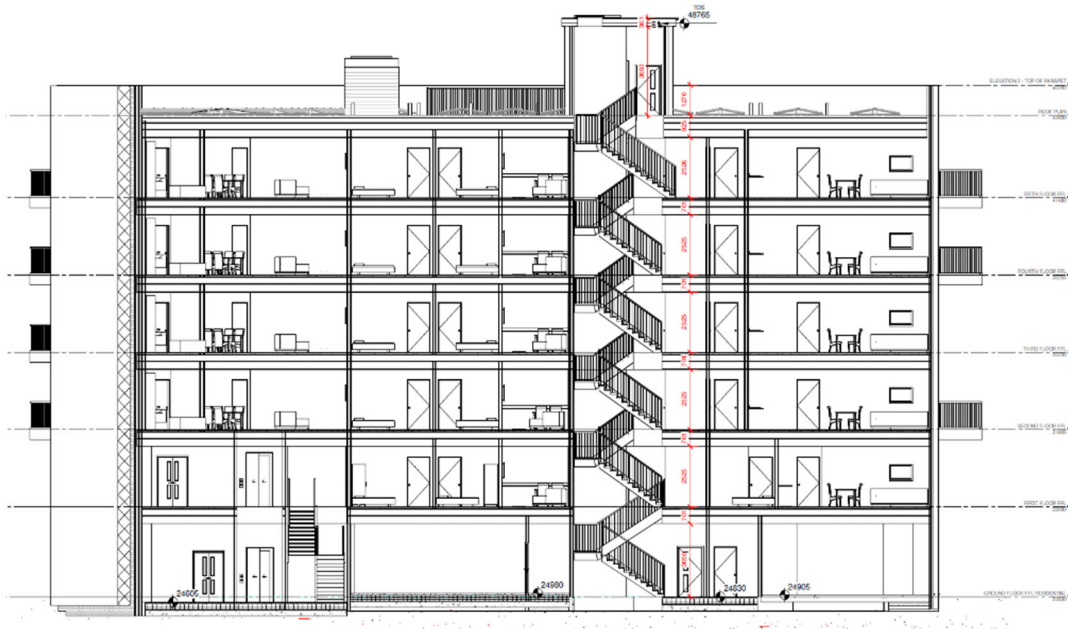




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Figure 2 Block E1 within the wider Chocolate Factory development



SECTION A
1:100

Figure 3 Proposed Block E1 Section



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3.3 Proximity of Cross-rail 2 Infrastructure

The proposed Crossrail 2 tunnel alignments are located in the vicinity of Block E1. The alignment information provided by Transport for London / Crossrail 2 has been overlaid onto the current Block E1 site plan to establish the relationship between the proposed development and the safeguarded infrastructure.

As illustrated in Figure 4, the proposed Crossrail 2 running tunnel alignments do not pass directly beneath the Block E1 building footprint. Based on the current alignment information, approximate plan distances of 27.0 m and 33.1 m are indicated between Block E1 and the respective Crossrail 2 tunnel alignments.

The proposed Block E1 foundation system comprises helical screw piles. As there is no direct overlap between the proposed building footprint and the running tunnel alignments, the foundation arrangement will be assessed with respect to the applicable Crossrail 2 safeguarding zones and the potential effects of future tunnel construction.

Following correspondence with the Crossrail 2 Safeguarding team, an indicative tunnel depth of approximately

25 m below ground level has been adopted for the purposes of this preliminary assessment. The Block E1 site plan with the Crossrail 2 alignment overlaid is included in Appendix C.

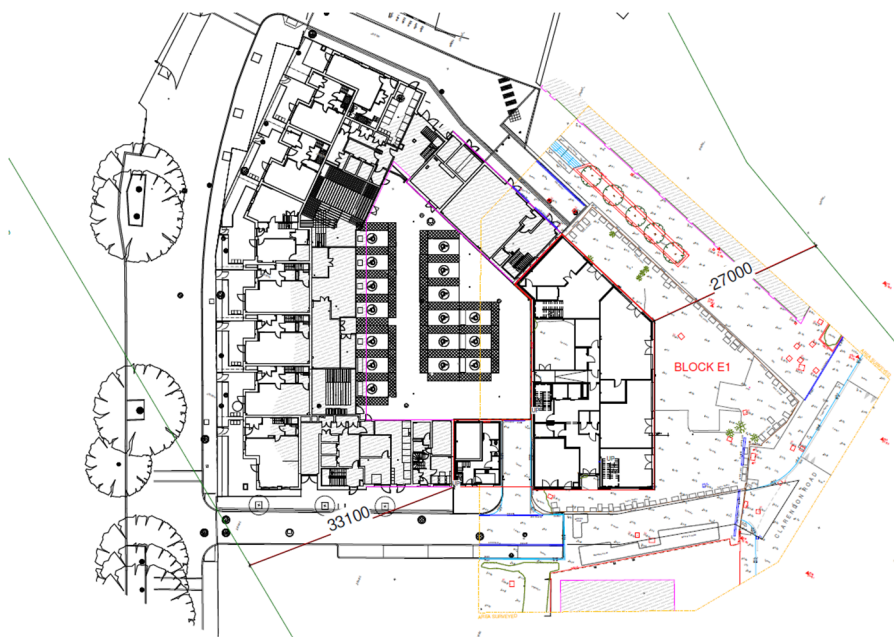


Figure 4 CR2 Tunnel Position In Relation To Block E1



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3.4 Design Assumptions

A number of assumptions have been adopted for the purposes of this Conceptual Design Submission, as outlined below:

- **Tunnel diameter:** A Crossrail 2 running tunnel excavated diameter of **7.8 m** has been adopted in accordance with the Crossrail 2 Information for Developers guidance.
- **Tunnel depth:** Confirmed vertical alignment information is not currently available. Following correspondence with Craig Newton of the Crossrail 2 Safeguarding team at Transport for London (TfL), an indicative tunnel depth of approximately **25.0 m below ground level** has been adopted. For the purposes of the preliminary ground movement assessment, this depth has conservatively been taken to represent the tunnel centreline depth.
- **Tunnel offsets:** Based on the current Crossrail 2 alignment overlay, horizontal distances of approximately **27.0 m and 33.1 m** have been adopted between Block E1 and the respective Crossrail 2 tunnel alignments for the preliminary ground movement assessment.
- **Safeguarding zones:** The exclusion, construction tolerance and alignment adjustment zones have been considered in accordance with the requirements set out in the Crossrail 2 Information for Developers guidance.
- **Foundation system:** The preliminary foundation solution comprises helical screw piles.
- **A maximum pile length of 12.0 m** has been adopted for the purposes of this assessment.
- **Pile loading:** A **maximum preliminary pile reaction of 240 kN (SLS)** has been adopted as a conservative upper-bound value for the purposes of this assessment.
- **Ground conditions:** The ground profile relevant to the tunnel settlement assessment has been taken as predominantly **London Clay / cohesive soil**. A settlement trough parameter of **K = 0.5** has therefore been adopted in accordance with the Crossrail 2 Information for Developers guidance.
- **Volume loss:** A volume loss of **1.2%** has been adopted for the ground movement assessment in accordance with Section 3.2 of the Crossrail 2 Information for Developers guidance.
- **Multiple tunnels:** The effects of the two Crossrail 2 running tunnels are assessed using the **superposition principle** described in Appendix A of the Crossrail 2 Information for Developers guidance.

The above assumptions are based on the information currently available at preliminary design stage and will be reviewed as the structural design develops and further Crossrail 2 alignment information becomes available.



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4. Parties Involved

- | | | |
|----------------------------|----------------------|--|
| • Formation Design & Build | Client | [www.oasisdevelopers.co.uk] |
| • WTEG Associates | Architect | [www.deltaarchitects.co.uk] |
| • JPSE Construction | Structural Engineers | [www.jpseconstruction.co.uk] |

5. Project Programme

The key dates for Block E1 are:

- Commence Construction: September 2026

6. Site Conditions

The ground conditions adopted for the preliminary screw pile design have been based on the available ground investigation information for Block E, including the Phase 2 Ground Investigation Report prepared by ARC Environmental Ltd, the Site Investigation information prepared by The Brownfield Consultancy, and the associated borehole and exploratory hole records.

The investigations indicate Made Ground overlying the London Clay Formation. The London Clay extends to significant depth beneath the site, generally increasing in strength with depth from firm to stiff and very stiff clay.

The Phase 1 Desk Study Report prepared by TerraSure Solutions Limited (March 2026) has also been reviewed as supplementary background information on the site and ground conditions.

Relevant extracts of the ground investigation information and exploratory hole records used for the preliminary screw pile assessment are included in Appendix D.

7. Effects of Cross-rail 2 Construction on the Proposed Development

Three assessments have been undertaken to consider the interaction between the proposed Block E1 development and the safeguarded Crossrail 2 infrastructure. These are:

- **Foundation and tunnel interface assessment**

The preliminary foundation design for Block E1 comprises approximately **150 no. helical screw piles**, with a **maximum design pile length of 12.0 m**.



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The relationship between the proposed foundation arrangement and the safeguarded Crossrail 2 running tunnel alignments has been reviewed with reference to the applicable safeguarding zones. Based on the current Crossrail 2 alignment information, the proposed building footprint does not directly overlie either running tunnel. The minimum horizontal distances from Block E1 to the respective tunnel centrelines are approximately **27.0 m and 33.1 m**.

A maximum preliminary pile reaction of 240 kN (SLS) has been adopted based on the current structural load assessment.

The proposed screw pile arrangement, pile lengths and loading have been considered in assessing the interaction between the Block E1 foundations and the safeguarded Crossrail 2 infrastructure.

- **Ground movement and building damage assessment**

A ground movement and building damage assessment has been undertaken using the methodology set out in Appendix A of the *Crossrail 2 Information for Developers*.

The effects of the two Crossrail 2 running tunnels have been assessed by superposition. The assessment predicts a combined greenfield vertical settlement of approximately **2.33 mm** at the nearest assessed edge of Block E1.

The resulting building strain assessment gives a maximum tensile strain of approximately **0.032%**, which is below the **0.05%** limiting tensile strain for **Damage Category 0 (Negligible)**.

Details of the ground movement and building damage assessment are presented in **Appendix F**.

- **Noise and vibration assessment**

A separate Ground-borne Noise and Vibration Assessment has been prepared for the proposed development, with the results presented in Appendix G.

8. List of Standards & References

- Crossrail 2- Information for developers; April 2021.
- BS EN 1991-1-1:2002 - Eurocode 1: Actions on structures
- BS EN 1992-1-1:2002 - Eurocode 2: Design of concrete structure