Your ref
Our ref 265381-00/SB/AF
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Dear Sirs

265381-00 Hickeys, Parkgate Street

We refer to the Strategic Housing Development Application at Parkgate Street, Dublin 8, Project Reference: P18-107D.

It is proposed as part of the development to construct an undercroft of total area circa 1,430m^2. With reference to Dublin City Council's BIA Basement Development Policy Document - Version 1.0, we refer below to the extensive site investigation works carried out and the relevant chapters contained within the Environmental Impact Assessment Report for the proposed development addressing the principle requirements of a Basement Impact Assessment.

- A Description of the proposed development is included in Chapter 3 of the EIAR with particulars of the undercroft, the boundary of the development and topography of the surrounding area described in RAU drawings and site maps submitted with this application. A flood risk assessment identifying nearby watercourses is also included in the Arup Drainage report
- **Ground Water**

  The proposed undercroft floor level is set below the existing ground level by approximately 1m at lowest excavation level on the South end of the site and is set below ground level by 3.2m at the highest excavation on the North end of the site.

  - Groundwater monitoring was carried out between May and June 2019 as part of the site-specific Ground Investigation (GI), with additional data gathered from Data Loggers between June and August 2019. Recorded Groundwater Level varied from 2.54 to 5.43m BGL. Average groundwater levels were typically lower towards the south of the site, adjacent to the River Liffey, hydraulic connectivity with the River Liffey lead to greater variation in groundwater level in line with tidal levels. The undercroft floor level and excavations are located at a minimum 1m above the

highest observed ground water level and site de-watering is therefore not proposed as part of this development.

- Chapter 16, Hydrogeology in the EIAR describes the likely significant effects of the ground water for the proposed development. An assessment is made of the likely effects associated with the construction and operation of the proposed development on these resources. Measures are presented to mitigate or eliminate the effects of the proposed development on the groundwater beneath the site. This includes also proposals for monitoring during construction.
- The Conceptual Site Model (CSM) is described in Chapter 16, section 16.3.4 and also presented in Figure 15.6 of Appendix 15.1. The CSM summarises the important geological and hydrogeological features in the study area. The CSM was developed based on the data obtained during the intrusive investigations i.e. borehole and trial pit logs, geophysical surveys and groundwater monitoring data.
- On the basis of the above it is concluded that the structure is not expected to impact on ground water flow during construction or thereafter.

- **Ground Movements**

  Due to the shallow levels of excavation required for the undercroft, the majority of the works will be constructed by forming an appropriate batter / sloping embankment. There will be a localised area requiring a temporary retention structure at the North of the site as described below, where the deepest excavation will occur.

  - Ground Investigation Reports are contained within Appendix 15 of the EIAR. Extensive site investigations were carried out and are described in Section 15.3.3 of the EIAR.
  - Chapter 15, Lands and Soils in the EIAR describes the likely significant effects of the proposed development below and adjacent to the site. In this chapter an assessment is made of the likely effects associated with the construction and operation of the proposed development on these resources. Measures are also presented in this chapter to mitigate or eliminate the effects of the proposed development on the soils, subsoils, bedrock and geological resources. This includes proposals for monitoring during construction. A ground movement assessment is also contained in this section.
  - Based on the above it is concluded that ground movements in the vicinity of the excavation will be imperceptible given the shallow nature of the undercroft across the majority of the site. Dewatering of the site is not required to facilitate construction and therefore there will be no material effect or potential for ground movement in the surrounding area arising from the works.

- **Temporary Works**

  The need for temporary works during construction of the undercroft structure will be localised to the Northern end of the site adjacent to Parkgate Street only, where the proposed development is located close to the site boundary and an existing protected archway structure. This area will be excavated to accommodate the undercroft floor at 3.2m below existing ground level. A sheet pile wall will be required to retain the foundation of the archway. Raking props into the site will be installed to support the sheet pile. Temporary anchors installed outward under the street are not proposed and all temporary works will be located within the site ownership boundary. The temporary works will be designed to limit ground movements and therefore mitigate any impacts of the works to the adjacent Parkgate Street and archway. All details of

the proposed temporary works shall be submitted to Dublin City Council for approval in advance of the works.

- **Impact on Neighbouring Structures**

  The undercroft footprint is set back from the site boundary and away from existing neighbouring buildings. At its closest point, the basement structure distance would be approximately 12.5m from the West of the site boundary where the existing TII building is located. The basement structure of the TII building was reviewed as part of the impact assessment. The building is supported on piled foundations with a series of pile caps and ground beams over a basement slab at circa 5.400mOD.

  There are no other existing neighbouring buildings bounding the site. Therefore, it was concluded that given the ground conditions the proposal would not affect the structural stability of any neighbouring properties. The undercroft footprint at its closest point is approximately 9.4m from Parkgate Street, and averages between 2m – 7m away from the North site boundary. The proposed temporary retention structure along the North site boundary will protect the public Street from any impacts.

- **Impact on Protected Structures**

  The on-site protected structures are to be retained and appropriate measures must be implemented to ensure this. The proposed undercroft structure is located a sufficient distance from the protected structures along the South boundary (including the Riverwall, square tower and turret) to have any detrimental effect. At its closest point the undercroft footprint is approximately 1m depth below the existing ground level and is located approximately 5m from the square tower, which is the closest protected structure on the Southern boundary. The protected archway along the North boundary of the site will be located within 1m of the proposed undercroft and therefore appropriate temporary retention structure as mentioned above will be required to protect this structure from any potential impacts resulting from construction works.

In summary the extensive site investigation works and EIAR has enabled us to carry out a screening process to identify risks regarding the proposed development. This process has revealed that risks relating to the proposed development are low with regard to impact on neighbouring structures, ground water and ground movements. Proposed mitigation and monitoring measures are also detailed and described in the EIAR and these have been incorporated into the draft CMP, which will be part of the planning application and will be used as the basis for the detailed CMP to be prepared in advance of construction.

Yours faithfully

for
Ove Arup & Partners Ireland Ltd t/a Arup

Sean Barrett