

In the matter of an application to An Bord Pleanála for approval of the Railway (Metrolink – Estuary to Charlemont via Dublin Airport) Order 2022

### **ORAL HEARING**

Impact of tunnelling and excavation works on the 2 Grand Parade Office Development at Charlemont

#### **1.0 INTRODUCTION:**

Name : John Keane BSc(Eng), CEng, MICE, MIEI

#### **Professional Experience:**

- Over 37 years' experience in Consulting Engineering in Ireland and the UK
- I am a Structural Director at DBFL Consulting Engineers
- I have widespread experience of Structural and Civil engineering design and construction in both Ireland and the UK over a broad range of sectors including commercial, residential, educational, and retail for both public and private clients.

#### **2.0 ROLE:**

DBFL Consulting Engineers are acting as structural / civil engineering advisers on behalf of Union Investment, the owners of the 2 Grand Parade office building, in relation to the impact of the proposed Metro Station construction and tunnelling works in the vicinity of Charlemont. We were the structural design engineers for the recent refurbishment and extension of the protected 2 Grand Parade office building which in part overlies the proposed Charlemont metro station.

### **3.0 RESPONSE TO TII PROPOSALS FOR TUNNEL AND STATION BOX CONSTRUCTION AT CHARLEMONT**

There are 2 tunnels proposed in the vicinity of the Charlemont station where the 2 Grand Parade building is located, the main metro tunnel and the Charlemont Intervention Tunnel. Both will be bored through the underlying limestone bedrock.

We note in Chapter 14 “Ground-borne Noise & Vibration” of the EIAR that the predicted vibration levels from the tunnelling machine are relatively low when compared with the threshold level (0.265 VDV predicted, 1.6 VDV threshold) with no significant impact anticipated.

In relation to the ground-borne noise we note that there will be a “significant” impact on the occupiers of the 2 Grand Parade building (Tb 14.29) “noticeable to all and disturbing to some over a number of days”.

For the construction of the station box the works will involve piling, mechanical excavation works and rock breaking/ blasting. Chapters 13 and 14 of the EIAR conclude that airborne noise generated by these works will have a “significant to very significant” impact on the occupants of the 2 Grand Parade Building and vibrations as a result of blasting works “would be noticeable to people within the building and above the threshold for structures”.

We note in TII’s response to our clients’ observations in relation to ground-borne and air-borne noise and vibration that they are agreeable to carrying out further calculations to determine more accurately what the internal noise levels are likely to be within the 2 Grand Parade building to determine what mitigation measures are necessary to ensure the building can operate normally.

These further calculations must also address the issue of noise and vibrations during the operational phase of the Metro project. We request that consideration be given to the provision of a Floating Slab Track beneath the protected structure of the Carroll’s Building.

All mitigation measures must be precise, detailed, acceptable to all stakeholders, enforceable and agreed in advance of the works commencing.

**We ask that the Board make this one of the conditions in granting the Railway Order**

In relation to the excavations for the Station box and in particular blasting to remove rock we note in TII's response to our observations that the blasting strategy/ designs will be re-visited and amended to ensure that assessment criteria are not exceeded. These amendments, baseline limits and monitoring regimes should be agreed between all stakeholders in advance of any works commencing.

**We ask that the Board make this one of the conditions in granting the Railway Order**

In relation to ground settlement we note that following TII's assessment of the impact of the excavation works alongside the 2 Grand Parade building, the protected "Carroll's Building" has been cited as a "special" building subject to a Phase 3 assessment and that intervention works may be required to reduce the effect of ground movements during construction of the station box.

**We ask that the Board make it a condition of the Railway Order that this assessment be carried out and that the results and any proposals for mitigation measures are agreed with all stakeholders prior to implementing.**