Submission No.	318
Organisation Name or Name of Submitter	Yu Miao Yang YMY Ltd.

Item No.	Section Ref.	Page No.	Observation Statement	TII Response
Subject: Metrolink: Railway order observations/objections (8 Blessington Street, Dublin 7 - Substratum land reference ML5C-U47)				
1	Proposed acquisition of substratum land	2	1. Your plans indicated "proposed acquisition of substratum land". Ref ML5C-U47 i) No indication of how Metrolink intends to monitor, communicate to owners and ensure there is no structural damage/impact from the proposed works.	TII acknowledge receipt of your observation/objections and in response please refer to items number (1) to (13) below. TII confirm that acquisition of substratum land beneath your property is required to enable the construction of the Metrolink tunnel. For the avoidance of doubt, TII are not proposing permanent or temporary land take at your property or to relocate your property (the unique land take referencing and numbering is ''ML5C-U47"). Substratum land take is shown on the Property Drawings submitted with the RO application and on Figure 21.1 of EIAR Chapter 21 (Land Take). 8 Blessington Street building has been identified as a 'special' building (designated protected structure, RPS 774 DCC) and will be subject to a detailed settlement assessment (Phase-3 assessment) at the detailed design stage to verify the impacts and, if necessary, appropriate control measures will be implemented to protect the building. The Phase 3 assessment process is detailed in Section 4.5 of Building Damage Report (Appendix 5.17 of the EIAR). A programme of ground movement monitoring will be implemented, with the monitoring locations informed by the Phase 3 analysis to be undertaken during the detailed design stage. The movement monitoring design will be undertaken by the Contractor and they may need to install monitors to your property as part of that design. Property Owner Protection Scheme (POPs) scheme can be availed of by private residential owners where properties lie within 30m of the tunnel or 50m of a cut and cover excavation (these distances are based on the ground movement zone of influence) and will provide for pre and post construction surveys and repair of damage attributable to MetroLink. To protect commercial properties, instead of a Property Owners Protection Scheme, TII contractors appointed to carry out the works will, with the agreement of the owners, commission chartered building surveyors to carry out a precondition survey of their commercial properties. In the event that it is determined that damage has occurred, TII's contractor will be required to commission a follow up survey to confirm the extent of the damage and whether the damage has been caused by MetroLink works. Metrolink project insurances will be put in place in a manner similar to other large rail projects including Luas. Where property damage is confirmed to have been caused by MetroLink works, the property concerned will have access to those insurances
2	Proposed acquisition of substratum land	2	II) what is the insurance/compensation should damage occur?	Please refer to response (1) above.
3	Environmental Impact Assessment Report	2	i) How the access to the property will be impacted if at all?	Impacts on access to this property as a consequence of the Project will be limited. Blessington Street will not be subject to any diversions or closures as a consequence of MetroLink. The nearest Temporary Traffic Management measures occurring local will be during Phase 2 and 3 (approximately years 2 to 6) of the station construction at Mater Station where general traffic will not be permitted to access Eccles Street from Berkeley Road. Suitable diversions have been outlined in Figure 7-33 of EIAR Appendix A9.5 and are unlikely to have adverse impact to the access of this property. Full details are available throughout Section 7.7 of EIAR Appendix A9.5.
4	Environmental Impact Assessment Report	2	ii) Which roads will be closed when?	Please refer to response Item number (3) above.

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5	Environmental Impact Assessment Report	2	iii) How the works underneath the street and around the area will impact the structural integrity of the property and what insurance we have if the house suffers damage due to the works relating to Metrolink.	EIAR Chapter 26 (Architectural Heritage) describes and assesses the likely direct and indirect significant effects of the proposed MetroLink project on Architectural Heritage. The protected structure status of 8 Blessington Street building is known (see Table 26.19: Architectural Heritage Constraints between Mater Station and O'Connell Station, BH-130) hence your property has been subject to impact assessment and the results are presented in the Section 26.5.4.9 Mater Station to O'Connell Station. According to the findings of impact assessment, there will be no direct or indirect impacts during Construction or Operational Phase in this section of the study area. TII have assessed the potential impact of MetroLink construction beneath existing buildings, to ensure impacts are mitigated wherever possible and that buildings are not damaged. This includes construction generated ground movements leading to settlement and possible building and property movement. The assessment of the effects of ground movements and potential impacts on existing buildings is detailed in Appendix A5.17 of the EIAR (Building Damage Report) and summarised in Section 5.4.11 of EIAR Chapter 5 (MetroLink Construction Phase). Table 5.2 of Appendix A5.17 provides a list of the assessment results of representative buildings along Blessington Street. Building reference B-96 is a representative building in close proximity to the reference building indicating 'very slight impact' anticipated from the tunnelling operation, indicating a damage category 2 or below. The damage categories are described in section 4.3.2 of the EIAR Appendix A 5.17, Building Damage Report. As mentioned to response item number (1) above, your building has been identified as a 'special' building and will be subject to a detailed settlement assessment (Phase-3 assessment). The Phase 3 assessment will take account of final design and construction methodology details. For the Phase 3 assessment, each building will be subject to detailed settlement assessment on an individual basis. A detailed survey will be carried out as part of the Phase 3 assessment to provide the necessary additional information to inform this detailed analysis of how the individual elements of the building would be affected by the predicted ground movements. The method and extent of the detailed analysis will be determined on a case-by case basis and may include a more sophisticated semi-empirical or a detailed soil-structure interaction using finite element modelling methods. It is likely that the Phase 3 assessment will yield further improvement to the damage category determined by the Phase 2b assessment. The results of this refined assessment typically show that earlier assessments are conservative and overestimate the likely impact of construction generated ground movements. (Refer to Appendix A5.17 of the EIAR, Building Damage Report). TII acknowledge the importance of this protected structure and will implement an appropriate monitoring regime to assure that your property is protected from impacts associated with MetroLink. Condition survey data gathered pre and post construction, and possibly during construction, will be used to assist the property owner and TII in the swift and accurate verification of any property damage claims which may be received from property owners.
6	Environmental Impact Assessment Report	2	iv) what is the nearest location to 8 Blessington Street where the construction will physically break ground and where buildings will be demolished?	8 Blessington Street is located in the area between Mater Station and O'Connell Street Station (between Chainage 15+900 and Chainage 16+000) within AZ4 Northwood to Charlemont Section of the proposed MetroLink Project. Works proposed in Area AZ4 will include the underground tunnelling from Northwood to Charlemont, the construction of nine underground stations, one interchange station at Glasnevin, an intervention shaft at Albert College Park and intervention tunnel at Charlemont. The construction of the tunnel will be by a TBM that will be launched from Northwood Portal and will tunnel southwards to a point approximately 400m south of Charlemont Station where the shell of the TBM will remain permanently in the ground. From there an intervention tunnel will connect the end of the tunnel to Charlemont to provide an emergency exit. Between Mater Station and O'Connell Street Station, the tunnel also includes a section that will run beneath Blessington Street. Construction Compounds will be required to support the enabling works and main civil engineering works. AZ4 section requires ten construction compounds, including Mater Station Main Compound and O'Connell Street Station Main Compound. The two main compounds are located at approximately 250m (Mater Station Main Compound) and 650m (O'Connell Street Station) away from 8 Blessington Street. The Mater Station construction site will be situated at the Four Masters Park to the north-west of St Joseph's Church on Berkeley Street. No demolition of existing properties is required at Mater Station construction site. However, there are several items that will need to be removed and securely stored for future reinstatement including the existing railings, the Four Masters Memorial Cross and the Healing Hands sculpture. These items are of protected status and are detailed further in EIAR Chapter 26 (Architectural Heritage).

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				The main O'Connell Street Station construction site will be on the western side of O'Connell Street Upper. A number of existing buildings and structures would require demolition to facilitate the development, however, others would be subject to conservation, refurbishment and adaptive reuse. A summary of properties to be demolished, maintained and supported is provided in Section 5.10.8 O'Connell Street Station of EIAR Chapter 5 (MetroLink Construction Phase). Further details are provided in EIAR Chapter 4 (Description of the MetroLink Project), Section 4.17 and EIAR Chapter 5 (MetroLink Construction Phase), Section 5.10 AZ4 Northwood to Charlemont.
7	Environmental Impact Assessment Report	2	v) there is reference of surveyors going in prior to work starting. Will the assessment of the potential structural impact be shared with the owners before and after the works?	Please refer to response (1) that explains the processs for surveys for residential and commerical properties. The assessment will be shared with the owner.
8	Environmental Impact Assessment Report	2	vi) What steps is Metrolink/company doing the works, taking to ensure there is no structural impact on the Georgian terrace that runs the length of Blessington Street?	Please refer to response Item numbers (1) and (5) above.
9	Environmental Impact Assessment Report	2	vii) What above surface structures (e.g. ventilation shafts etc) will be left long term post the Metrolink's construction?	There are no surface structures proposed on Blessington Street. The EIAR Chapter 4 (Description of the MetroLink Project) provides a detailed description of the MetroLink Project, and all of the infrastructure and systems required to deliver the MetroLink Project. The station design concept and typology is presented in the Section 4.9 of the EIAR Chapter 4. Metrolink City tunnel will run beneath Blessington Street in the area between Mater Station and O'Connell Street Station. Given the location of the stations along the alignment and the spatial constraints at street level for each station, both Mater and O'Connell Street Stations will be developed as underground stations meaning that they will be fully below ground with a roof slab over the top to enclosed the station fully. The following station surface features will be located at ground level at each underground station: - Main station entrance with canopy, escalators and stairs; - Ventilation and air intake grills; - Firefighting lifts (Intervention Shaft) one at each end of the station; - Passenger lifts; and - Emergency exits, one at each end of the station end with a 'pop up' opening at ground level. The key features of the closest stations to 8 Blessington Street are detailed in Section 4.17.8 Mater Station and 4.17.9 O'Connell Street Station of the EIAR. The tunnel fit out is presented in the Section 4.10 of the EIAR Chapter 4 and station design concept and typology is presented in the Section 4.9 of the EIAR Chapter 4. Ventilation shafts, as detailed in EIAR Chapter 4 (Description of the MetroLink Project), are required for underground stations, Dublin Airport North Portal, Dublin Airport South Portal, tunnelled sections, Albert College Park Shaft, Charlemont Intervention Tunnel, Airport intervention tunnel and Airport ventilation tunnel. This will include the installation of fans.

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10	Environmental Impact Assessment Report	2	viii) What type of disturbance in the form of vibration and noise will be coming from underground during the construction and also when the trains are up and running?	Appendix 14.5 Groundborne Noise and Vibration Blasting Modelling Results presents predicted groundborne noise and vibration levels during the construction and operation phase of the project for 8 Blessington Street property. **Construction Phase Groundborne Noise and Vibration** 1. The predicted level of groundborne noise during TBM passage is 48 dB LASmax, which is above the 45 dB LASmax threshold. This will result in a significant impact on the occupants of the building while the TBM passes underground, which is anticipated to take up to two weeks. Unfortunately, there are no effective methods available to reduce groundborne noise from TBMs at source. The principal mitigation measures aimed at minimising impacts are as follows: • Advance public consultation and stakeholder engagement can greatly reduce the significance of groundborne noise effects during construction, as building occupants would be prepared for the passage of the TBM and resultant elevated noise levels. • TII will accept and consider applications for additional measures on a case-by case basis, in accordance with its Noise and Vibration Mitigation Policy (see Appendix A14.6). 2. The predicted levels of groundborne vibration - VDV (Vibration Dose Value is a parameter that combines the magnitude of vibration and the time for which it occurs) during TBM passage are 0.255 ms-1.75 (VDV day) and 0.214 ms-1.75 (VDV night). Both of these values are lower than the VDV Threshold Levels for human response of 1ms-1.75 (VDV day) and 0.5ms-1.75 (VDV night), meaning that no significant impact is expected on people within the building as a result of vibrations during TBM passage. Threshold levels for building damage are much higher than those for human response, and there are therefore no significant impacts expected for the building at this location. **Operational Phase Groundborne Noise and Vibration** 1. The predicted level of groundborne noise during the railway operation is 34 dB LASmax, which is below the 40 dB LASmax threshold, resulting in a not significant impact on the occupants of the building. 2. The predicted levels of groundborne vibration during the railway operation are 0.008 ms-1.75 (VDV day) and 0.004 ms-1.75 (VDV night), much lower than the VDV Threshold Level for these buildings of 0.8 ms-1.75 (VDV day) and 0.4ms-1.75 (VDV night), resulting in a not significant impact on the building.
11	Environmental Impact Assessment Report	2	ix) Enabling works survey: Will the findings of that be shared with people whose property the construction may impact?	TII confirm that further surveys will be undertaken by the Contractor during Enabling Works in order to confirm and update the findings of surveys completed for the EIAR. Further survey requirements to be undertaken during Enabling Works include further biodiversity surveys, contamination investigations, groundwater monitoring, noise and vibration monitoring and ground movement monitoring. These surveys will confirm and update the findings of surveys completed for the EIAR. In addition, they will provide further detail to allow for the most effective implementation of the mitigation and monitoring required by the RO. (Refer to Chapter 5, Construction, of the EIAR, Section 5.4). Please refer to response (1) regards property surveys.

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12	Environmental Impact Assessment Report	2	x) Drilling and blasting: Mater station. Has there been an assessment made on the structural effects of blasting intended for the station?	Yes the impact from proposed blasting operations during the construction phase at Mater Station have been assessed in the EIAR. Further details and examples of impacts are provided below. **EIAR Chapter 5 (MetroLink Construction Phase), Appendix 5.20 Blasting Strategy Report** covers the building and structural assessments undertaken to identify all affected buildings and structural assets within the zone of influence (ZOI) of the station works (including Mater Station), to classify them according to their probable reaction and tolerance to vibrations and set them appropriate Peak particle velocity (PPV) limits. Furthermore, the assessment also identified buildings or assets of architectural heritage interest. The blasting strategy also includes identification of possible blasting patterns at each construction site (including Mater Construction Site) to ensure the specified PPV limits set at each station location are not exceeded. The blasting patterns have been identified following the blast pattern design and considerations of receptors around each station construction site. Proposed blasting patterns at the Mater Construction Site are presented in Table 4-4 of EIAR Appendix 5.20 The blasting patterns have been summarised in Table 5-1 and further defined in the Appendix A of the Blasting Strategy Report. **EIAR Chapter 14 (Ground-borne Noise and Vibration)** covers the impacts assessment of groundborne noise and vibration. Contours of peak particle velocity and air overpressure have been generated and are presented in Figures 14.4 and 14.5 (Sheet 6 of 7 for Mater Station) of EIAR Chapter 14. Predicted blasting vibration and air overpressure levels compared to the threshold values for various receptors within proximity of blasting activity at Mater Station area are given in Table 14.34 and Table 14.35 of EIAR Chapter 14. The full results of vibration blasting modelling, including for various sensitive receptors within the area of Mater Station are shown in EIAR Appendix A14.5, Section 14.4. Where thresholds levels are exceeded, mitigation measures will be implemented to reduce the risk to the building from blasting as outlined in Chapter 14, section 14.5.1.2, Appendix A5.20 (Blasting Strategy Report) and in Section 6.12 of the outline CEMP (EIAR Appendix A5.1). Mitigation will include preparation of site specific blast designs that take account of sensitive receptors, including minimisation of the maximum instantaneous charge weight, or if necessary, alternative methods to blasting being employed. With the implementation of mitigation measures, vibration from blasting will be sufficiently reduced such that the residual vibration will not cause damage to buildings.
13	Dublin Conservation	3	Blessington Street, Dublin 7 is a row of protected Georgian terraces. What are the protection measures that Dublin City Council Conservation have put on to the Metrolink construction?	TII welcome your query and recognise the architectural importance of Blessington Street with fifty-seven protected structures in Blessington Street listed in the Table 26.19: Architectural Heritage Constraints between Mater Station and O'Connell Station of the EIAR Chapter 26 (Architectural Heritage). The results of predicted impacts show that there will be no direct or indirect impacts during Construction or the Operational Phase in this area. Please refer to EIAR Chapter 26, Section 26.5.4.9 Mater Station to O'Connell Station and response item numbers (5) and (10) above. No specific mitigation measures are required to be implemented during construction in relation to Blessington Street's architectural heritage, as presented in EIAR Chapter 26, Table 26.66: Proposed Mitigation. However, general measures are required to be implemented during construction to protect architectural heritage and these measures are presented in Section 26.7 Mitigation Measures and Residual Impacts of the EIAR Chapter 26 and Section 6.8 Archaeology, Architectural and Cultural Heritage of the EIAR Appendix 5.1 Outline CEMP.