



DENTON
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MARSHALL



T2 VITA LIVING, ST. JOHN'S

**WATER STREET WIND
MITIGATION REPORT**

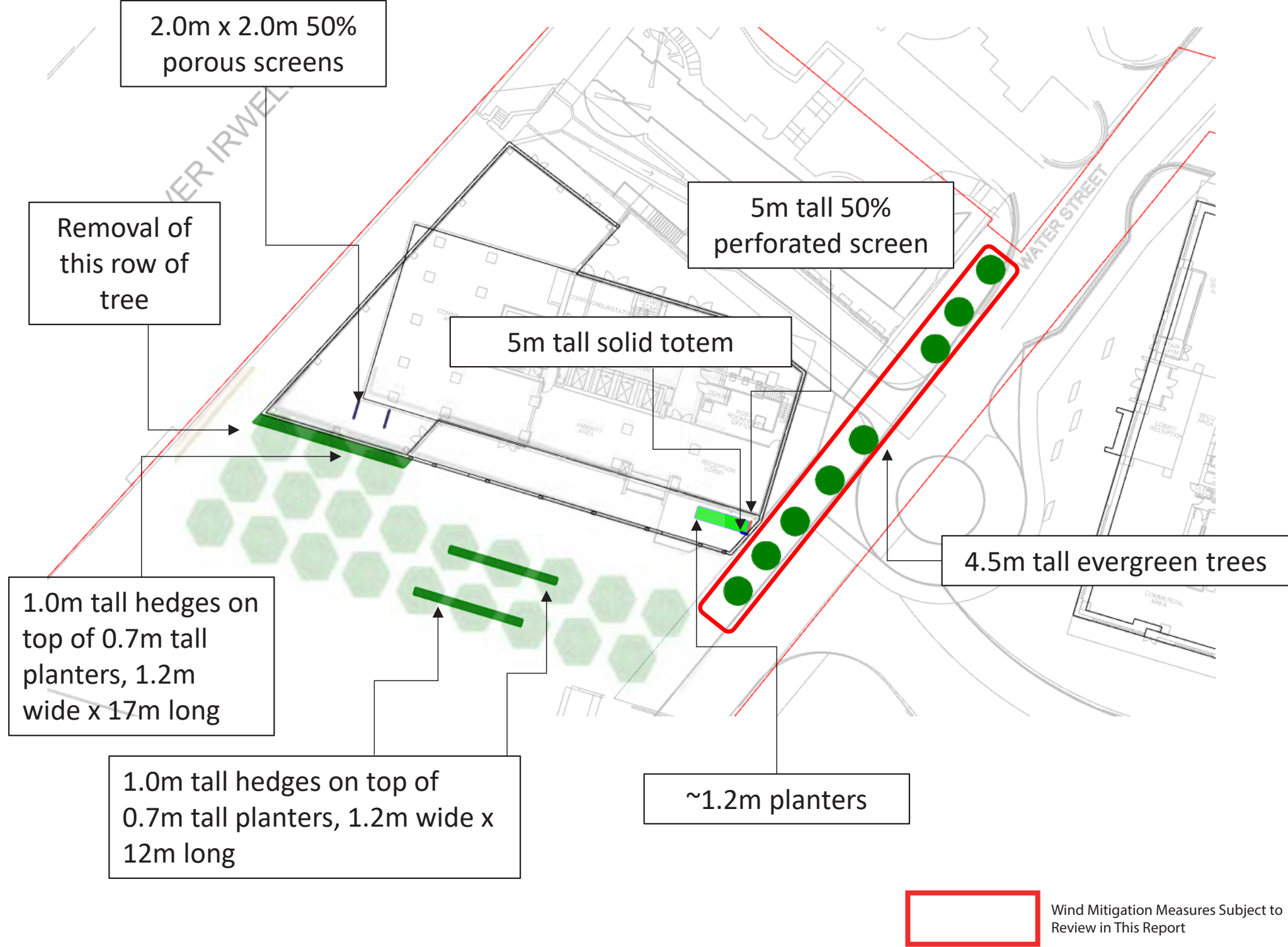
VITA GROUP

JUNE 2024

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CONTENTS

1.0	INTRODUCTION	04
2.0	ORIGINAL WIND MITIGATION SCHEME: 8 NO. DECIDUOUS TREES	05
3.0	PROPOSED ALTERNATIVE WIND MITIGATION SCHEME: STREET FURNITURE OPTIONS	06
4.0	PROPOSED ALTERNATIVE WIND MITIGATION SCHEME: FINAL PROPOSALS	07
5.0	APPENDICES Appendix A : <i>Architectural Aerodynamics Ltd. Letter to Deloitte LLP</i>	08

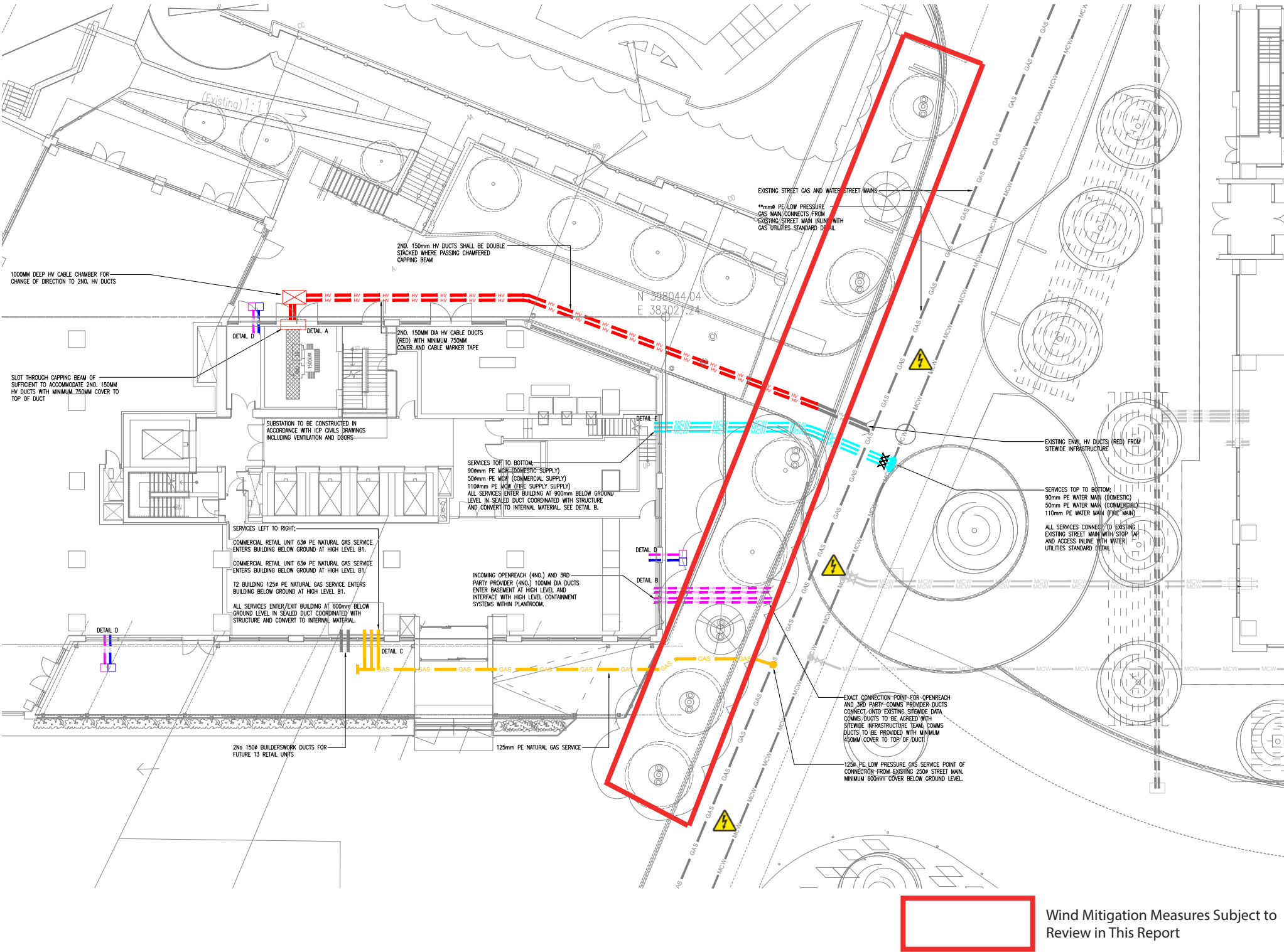


In conjunction with full planning consent ref. 126648/FO/2020, details of wind mitigation measures need to be agreed with Manchester City Council (MCC). A Wind Mitigation Study (ref. 0172079rep3v1, dated 20 March 2023) was carried out to assess the wind microclimate for the proposed Vita Living T2 development at St. John's in central Manchester. With the introduction of the mitigation measures (see figure 1), wind conditions within the site and surrounding areas are substantially suitable for planned and existing uses.

Since the Wind Mitigation Study was completed, the provision 8 no. deciduous trees along Water Street has been reviewed and an alternative solution is proposed. The purpose of this report is to illustrate the alternative options that have been considered in replacement of the trees which will provide the necessary wind mitigation.

Figure 1: Wind Mitigation Scheme, 20 March 2023

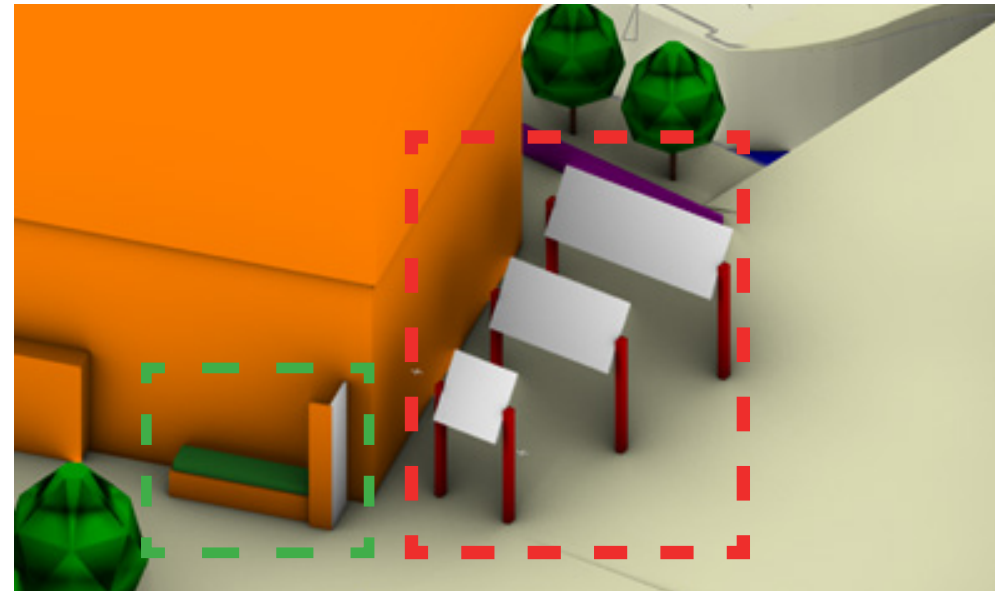
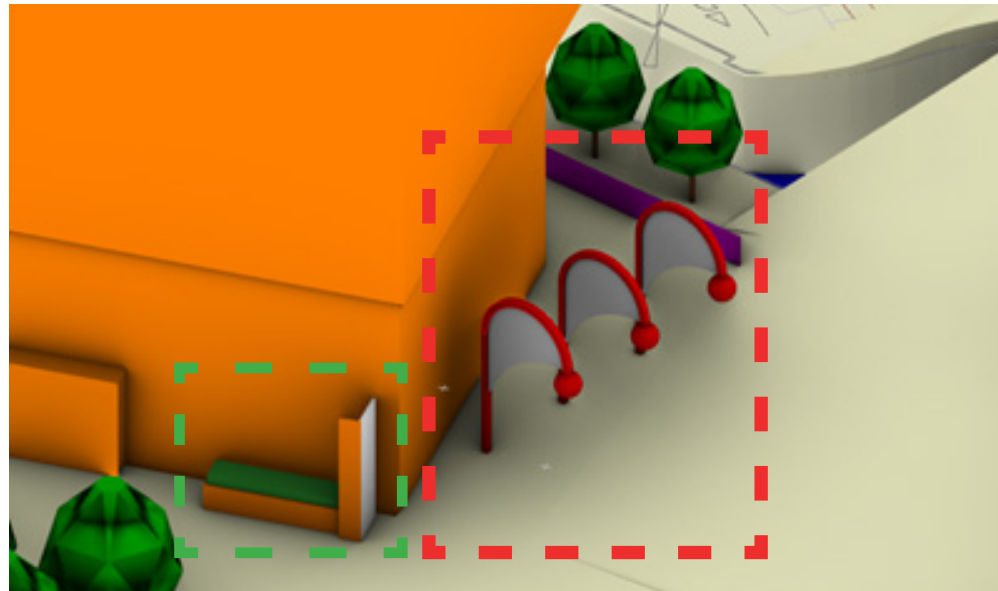
2.0 ORIGINAL WIND MITIGATION SCHEME: 8 NO. DECIDUOUS TREES



The trees were to be situated along Water Street (as highlighted in red in Figure 1), however ‘in-ground’ planting was not possible due to the existence of numerous underground services and other hidden obstructions (see Figure 2). Situating the trees within individual raised planters was considered but this option was discounted following comments raised by MCC at a pre-application meeting held in August 2023. On that basis, the design team were directed to review alternative options for wind mitigation along Water Street.

Figure 2: Below Ground Services Plan

3.0 PROPOSED ALTERNATIVE WIND MITIGATION SCHEME: STREET FURNITURE OPTIONS



Alternative options for wind mitigation were tested using CFD analysis and the provision of additional wind 'baffles' was feasible. Figures 3 and 4 show two variations of the initial baffle designs that were tested.

Option A was considered to be the best option to pursue further, for the following reasons:

- The design of Option A could be developed into a piece of street furniture which *could* complement the architecture of T2 and the wider street scene;
- Option B could potentially overly dominate the east elevation of the building and the wider street scene;
- Option A offered greater potential to aid wayfinding and act as a brand 'identifier'

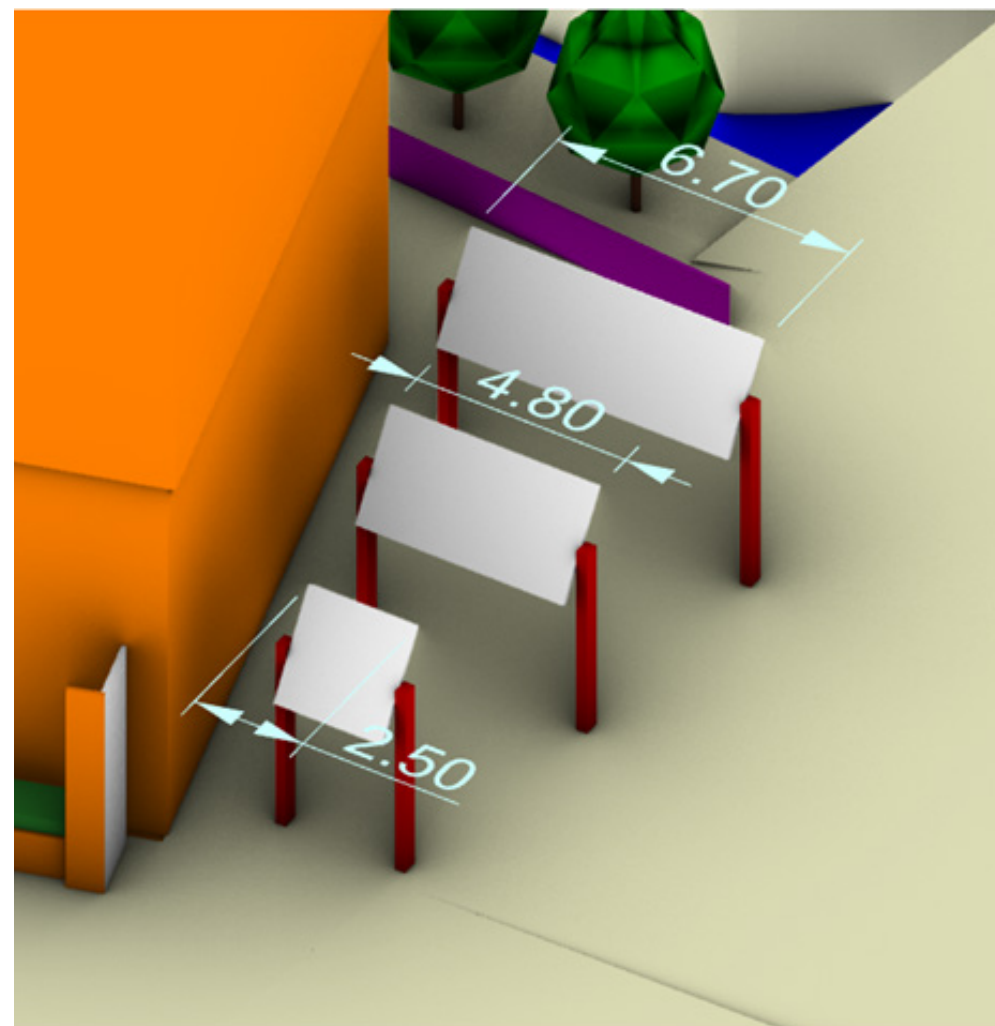
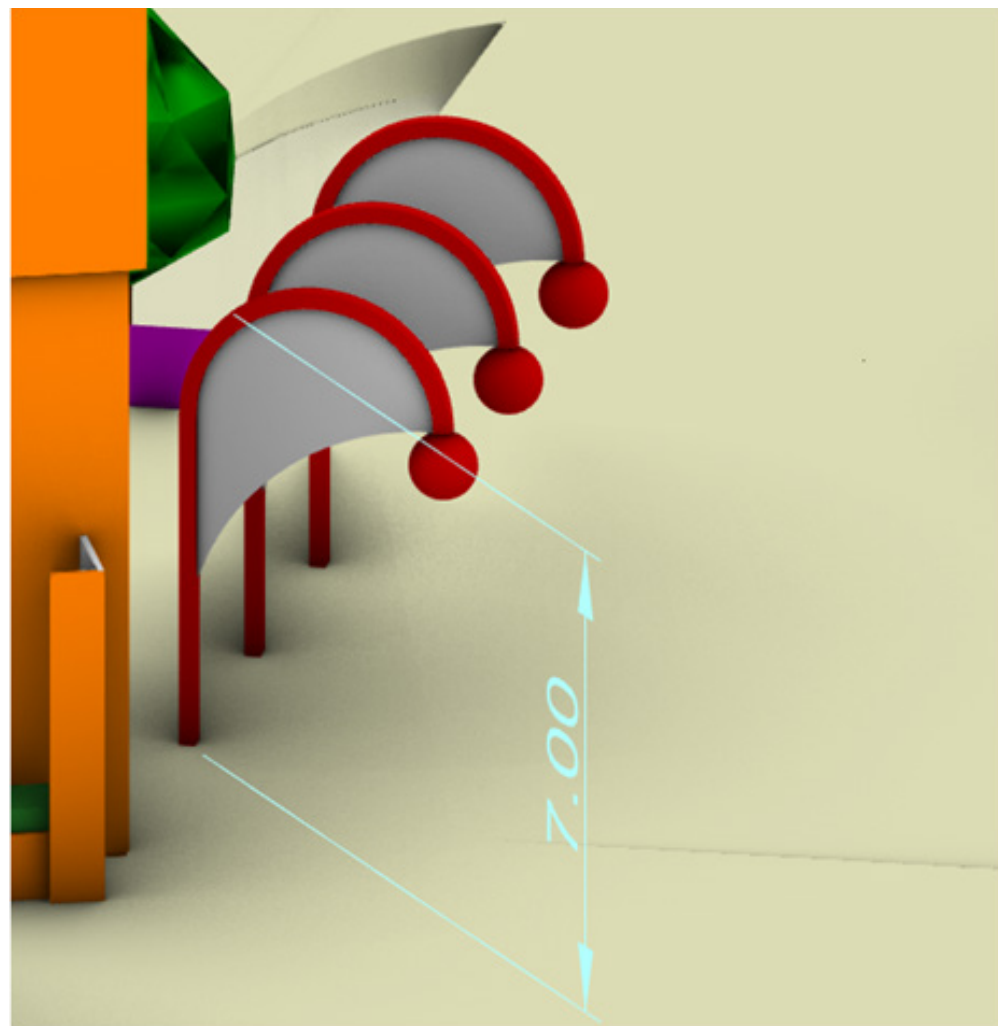


Figure 3: Alternative Wind Mitigation Scheme (Option A)

Figure 4: Alternative Wind Mitigation Scheme (Option B)

4.0 PROPOSED ALTERNATIVE WIND MITIGATION SCHEME: FINAL PROPOSALS



Whilst Option A was chosen as the preferred alternative option, the design should still be developed to better complement the surrounding architecture.

Figure 5 shows the developed final proposed design. The overall height of each column is 7.9m high and is 2.1m in depth with a 3.5m high perforated panel suspended below.

The column is proposed to be finished in Black Polyester Power-Coated metal and the panel is to have a silver grey finish, all to match the adjacent T2 building facade.

This design has been tested using CFD analysis and this has predicted to perform similarly to the trees in the original wind mitigation scheme, see Appendix A.

Figure 5: Proposed Wind Mitigation - Final Proposals



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13th May 2024

Rachel Poole
Assistant Director,
Deloitte LLP.

Dear Rachel,

Vita T2, Manchester, UK: Wind Microclimate Assessment

I write in connection with the Wind Microclimate Assessment for the T2 development that was undertaken by Architectural Aerodynamics Ltd (ArcAero) and documented in report 0170279rep3v1 dated 20th March 2023, appended to this letter.

Following the planning consent for the Proposed Development, the applicant has commissioned ArcAero to examine the effects on the wind microclimate surrounding T2 following the removal of 8 trees at the height of ~6m to the east of T2, and their subsequent replacement with three elevated 50% solid screens to inhibit the passage of wind as it deflects from the T2 tower and along Water Street. The design of the screens is based on the drawings received on 3rd May 2024, “6555_VITA T2_535_DCM WIND MITIGATION OPTION 2A.dwg”.

The updated soft landscaping proposals for T2, as well as the former locations of the removed trees, are shown in Figure 1 below. The design of the elevated screens is shown in Figure 2.

ArcAero have undertaken CFD modelling to assess the sensitivity of conditions to this change to the mitigation strategy. The results are presented graphically within Figure A.1 in Appendix A for worst-seasonal and summer conditions.

Following this change, the safety criteria are predicted to be met throughout the T2 development and within the surrounding areas. Wind conditions on the thoroughfares in and around the T2 development remain substantially suitable for pedestrian strolling, and in places, for fast walking. Conditions along Water Street with this alternative wind mitigation mechanism are predicted to be materially similar to the approved soft landscaping scheme.

Yours Sincerely,

Teoh Hao Yang

Wind Engineer
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Figure 1: Soft landscaping proposals / wind mitigation for T2

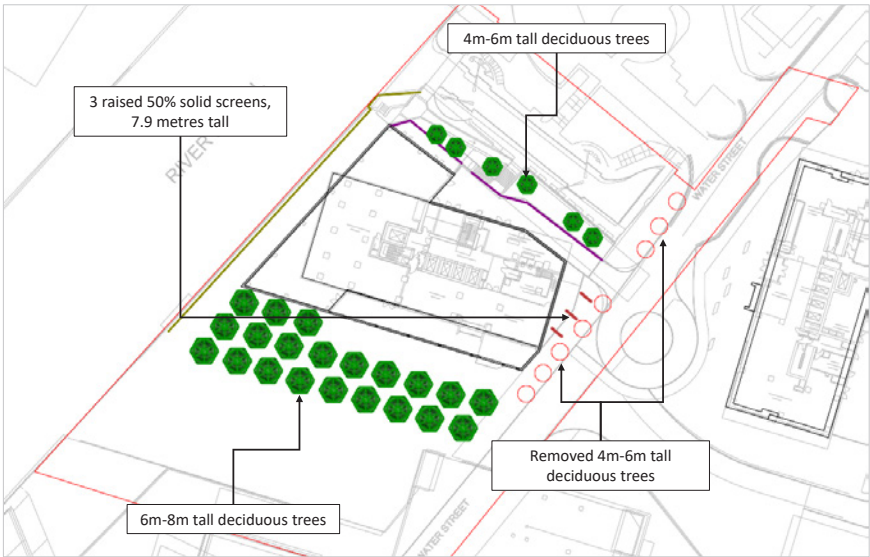
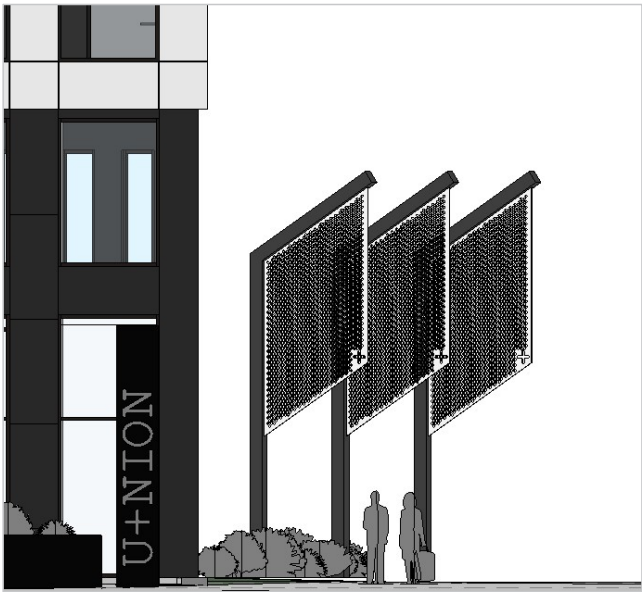


Figure 2: Elevated screens design.



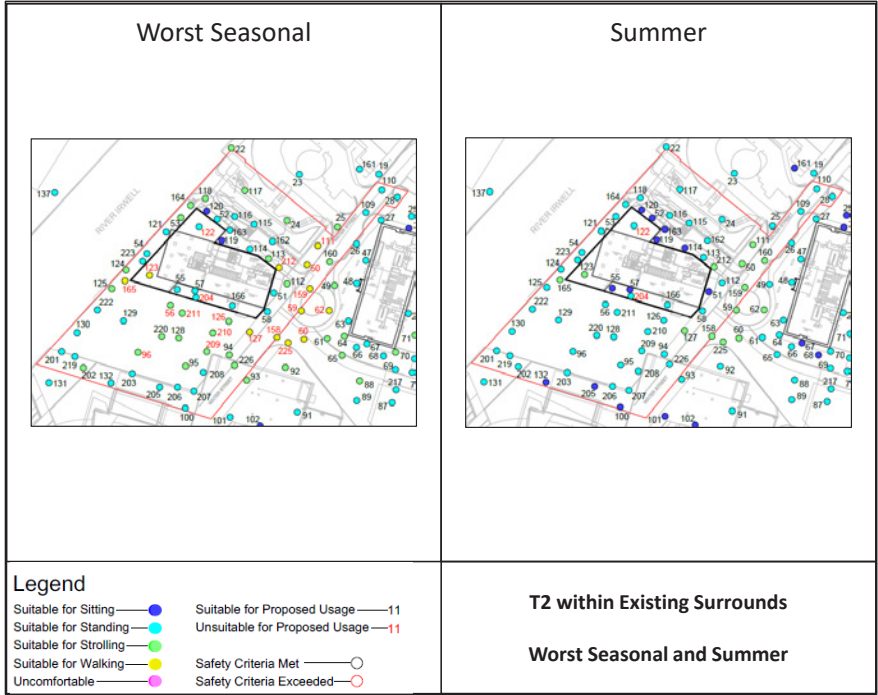
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Appendix A

Figure A.1: Pedestrian wind conditions, T2 development within existing surrounds



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