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27th September 2021

Mr John Green
Sirius Developments Pty Ltd
120B Underwood Street
Paddington NSW 2021

Dear Mr Green,

Re: Sirius Building - Tree numbers 50 and 51 - Basement rectification works.

Reference is made to my letter dated 19th August 2021 in respect of the likely impacts of the proposed basement rectification works at the Sirius Building to two adjoining trees located in the Gloucester Walk. I have subsequently been provided with updated engineering advice and documentation regarding damage to the basement retaining walls and blockages of a stormwater pipeline adjacent to the trees.

This letter updates my previous advice.

As you are aware Landscape Matrix has previously prepared an Arboricultural Impact Report dated 1st September 2020 in respect to trees at and immediately adjacent to the site.

This letter is in respect to proposed basement rectification works in the immediate vicinity of the trees. I confirm I have been provided with the advice prepared by SCP Engineers and Development Consultants dated 18/8/2021. A copy of that advice which outlines the proposed works is attached at Appendix A.

The trees in question are identified as tree numbers 50 and 51 in the earlier report prepared by Landscape Matrix and were summarised in the earlier report as follows:

Tree Number 50

A mature, single trunked Platanus x hybrida (Plane Tree) approximately 18 metres in height with a canopy spread of 16 metres and a DBH of 590mm. In good health and of high landscape significance.

The tree displays fair branch attachment with multiple leaders from 3 metres - not considered at risk of failure. Limited TPZ area due to adjacent infrastructure, level changes etc. Pathway adjacent to the tree is lifted and cracked consistent with displacement by roots. Some foliage damage likely due to Sycamore Lace Bug.

Tree Number 51

A mature, single trunked Platanus x hybrida (Plane Tree) approximately 18 metres in height with a canopy spread of 16 metres and a DBH of 570mm. In good health and of high landscape significance.

Limited TPZ area due to adjacent infrastructure, level changes etc. Pathway adjacent to the tree is lifted and cracked consistent with displacement by roots. Some foliage damage likely due to Sycamore Lace Bug.

Under AS4970-2009 *Protection of trees on development sites* tree number 50 has a tree protection zone (TPZ) of 7.1 metres and tree number 51 a TPZ of 6.8 metres. Both trees have a structural root zone (SRZ) of 2.9 metres. The TPZs and SRZs are radial offsets measured from the centre of trunk.

AS4970-2009 identifies the structural root zone as the area required for stability and where disturbance of any sort should be avoided.

As noted in the earlier report the trees have a limited TPZ area due to adjacent infrastructure, significant level changes etc. Included in these limitations is the existing basement of the Sirius building. The existing basement is located within the identified SRZs of both trees.

The advice prepared by SCP Engineers and Development Consultants dated 27/9/2021 identifies the existing basement walls are:

- Not compliant to current codes and cannot be certified;
- The retained material behind the walls needs to be removed;
- The walls will need to be demolished and re-constructed; and
- Tree root damage to the retaining walls has been documented and is compromising the structural integrity of wall allowing water ingress to basement.

A copy of that advice is attached as Appendix A.

In addition to the above I have been provided with 'in pipeline' videos showing roots have infiltrated existing storm water lines adjacent to trees 50 and 51 with blockages and damage to the pipelines. Given the proximity of the trees to the blocked pipelines, together with lack of other vegetation of substance in the vicinity, it is considered highly probable roots from trees 50 and 51 are the cause of the blockages. The video was from the blocked pipeline adjacent to trees 51. I am advised the pipeline adjacent to tree 51 was too heavily blocked to enable a video of the roots.

I confirm my advice that the required retaining wall works will have a significant impact on the trees and will almost certainly render the trees unstable and at risk of failure in the short term.

Given the high levels of target (human) activity in the immediate vicinity of the trees their removal, prior to commencement of works, is the only option if the works are to proceed as proposed.

In this regard it is noted the Consolidated Ground Floor/Public Domain Plan prepared by 360° Landscape Architects dated 4th August 2021 and identified as Drawing Number L-DA-012, Issue J 88DA identifies tree 50 will be replaced with a specimen of *Nyssa sylvatica* (Nyssa, Tupelo).

Given the site constraints (above and below ground) where the trees are located it is concluded that the removal of tree 50 and its replacement with a Nyssa is an improved long term landscape solution (NB: the pathway adjacent to the tree is lifted and cracked consistent with displacement by roots from the tree). It is recommended that tree 51 also be replaced with a *Nyssa sylvatica* (Nyssa, Tupelo).

Don't hesitate to contact me if you wish to discuss any aspect of this advice.

Yours sincerely

A handwritten signature in black ink, reading "Guy Paroissien". The signature is written in a cursive style with a large, sweeping initial "G".

Guy Paroissien MAIH, MIACA, MISA
M Env. Mgt. & Restor., Dip. Arboriculture, Hort. Cert., Tree Care Cert.
Director
Landscape Matrix Pty Ltd

CC Ben Wilderink, Senior Project Engineer, Richard Crookes Constructions

Sirius - Tree Removal on Gloucester Walk

DATE 21/09/2021
TO Richard Crookes Constructions Pty Ltd
ATTN Ben Wilderink
PROJECT Sirius Building

Dear Ben,

This letter is prepared to provide comment on the existing Sirius eastern basement retaining walls design and condition and to also comment on the stability of Trees T50 and T51 on Gloucester walk due to the required basement wall structural upgrade and proposed basement construction works.

Locations of Tree T50 and T51 are indicated on the structural footing plan with cross sections as shown in Appendix A. The Trees are approximately 0.5m to 1.0m behind the existing retaining walls. As a result, the trees are within the zone of influence of the retained material behind the wall.

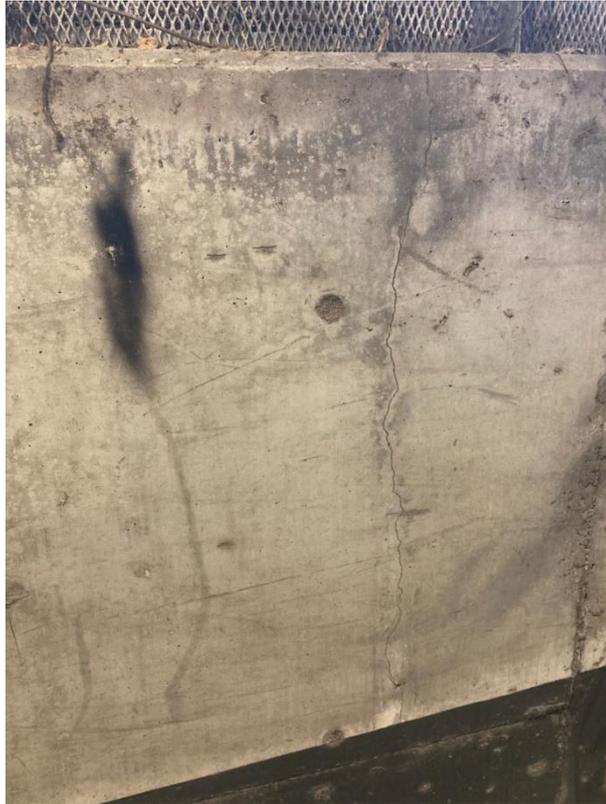
We note the existing retaining walls are of age and have been compromised by Tree 50 and 51. At Tree 50, the tree roots have penetrated the walls inducing forces onto the wall as well as compromising the integrity and waterproofing of the wall. At tree 51, the wall displays a vertical crack at the centre line of the tree trunk indicating the tree has imparted significant lateral pressure on the wall and caused the wall to fail in horizontal bending. This crack in the wall is at least 1 to 1.5mm in width indicating structural failure of the wall. We note the wall at this location also presents a 30mm lean into the basement. The lean is indicative of flexural failure at the base of the wall, or instability of the wall as a result of the added induced lateral pressure of the tree root system.



Tree 50: Plane Tree root penetration at wall floor internal junction



Tree 51: structural crack to retaining wall



Tree 51: structural crack to retaining wall (top to bottom)



Tree 51: structural crack to retaining wall (top to bottom) at centreline of tree trunk

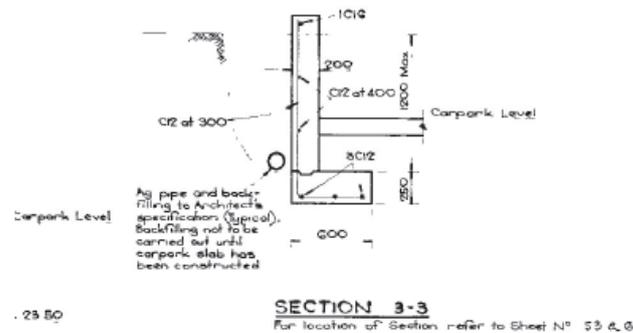
Existing Wall and Tree Stability and Certification

The existing basement walls do not comply for stability to AS4678-2002 Earth Retaining Structures and therefore cannot be re-certified to current Australian Standards irrespective of the damage to the walls caused by Tree 50 and 51.

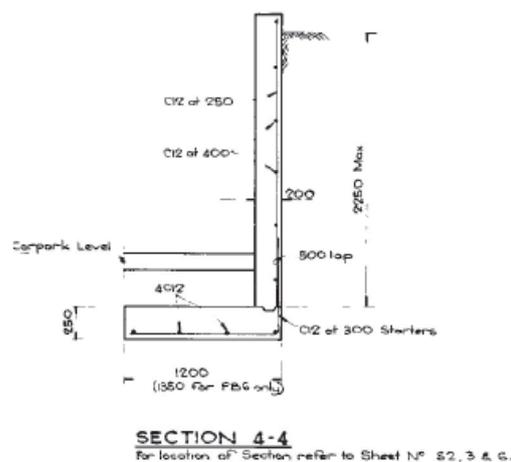
The existing retaining walls adjacent to trees 50 and 51 have narrower footings than required as specified in AS4678-2002 Earth Retaining Structures.

The 2 sections below indicate the construction of the existing walls and footings at tree 50 and 51.

Section 4-4 indicates a wall height of 2250mm having a footing of 1200mm wide. In accordance with AS4678-2002 the footing is to have a width of 1700mm minimum. The wall is therefore deemed to be unstable in accordance with the code requirements.

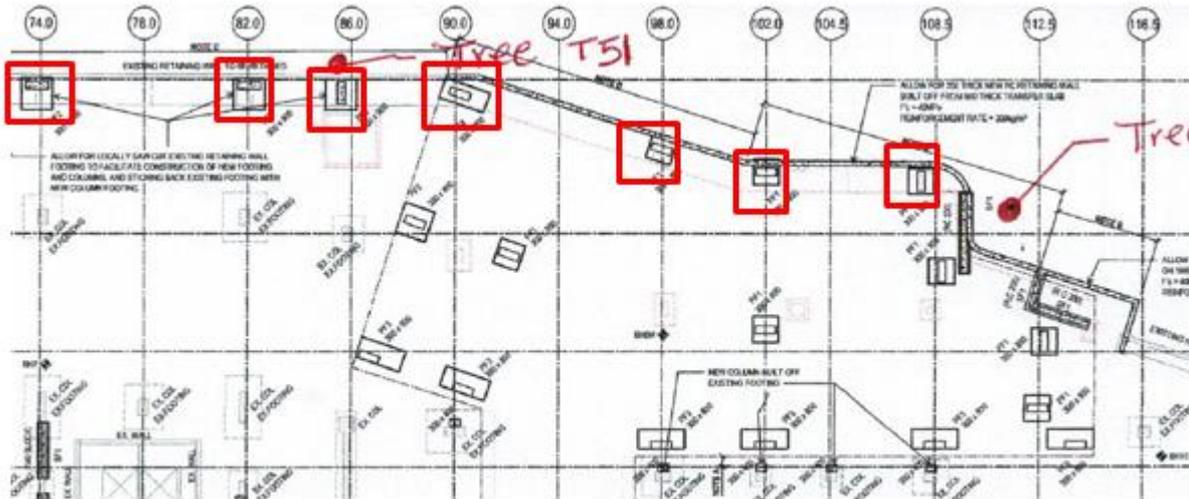


Typical Wall section South of Grid 108.5 at Tree 50

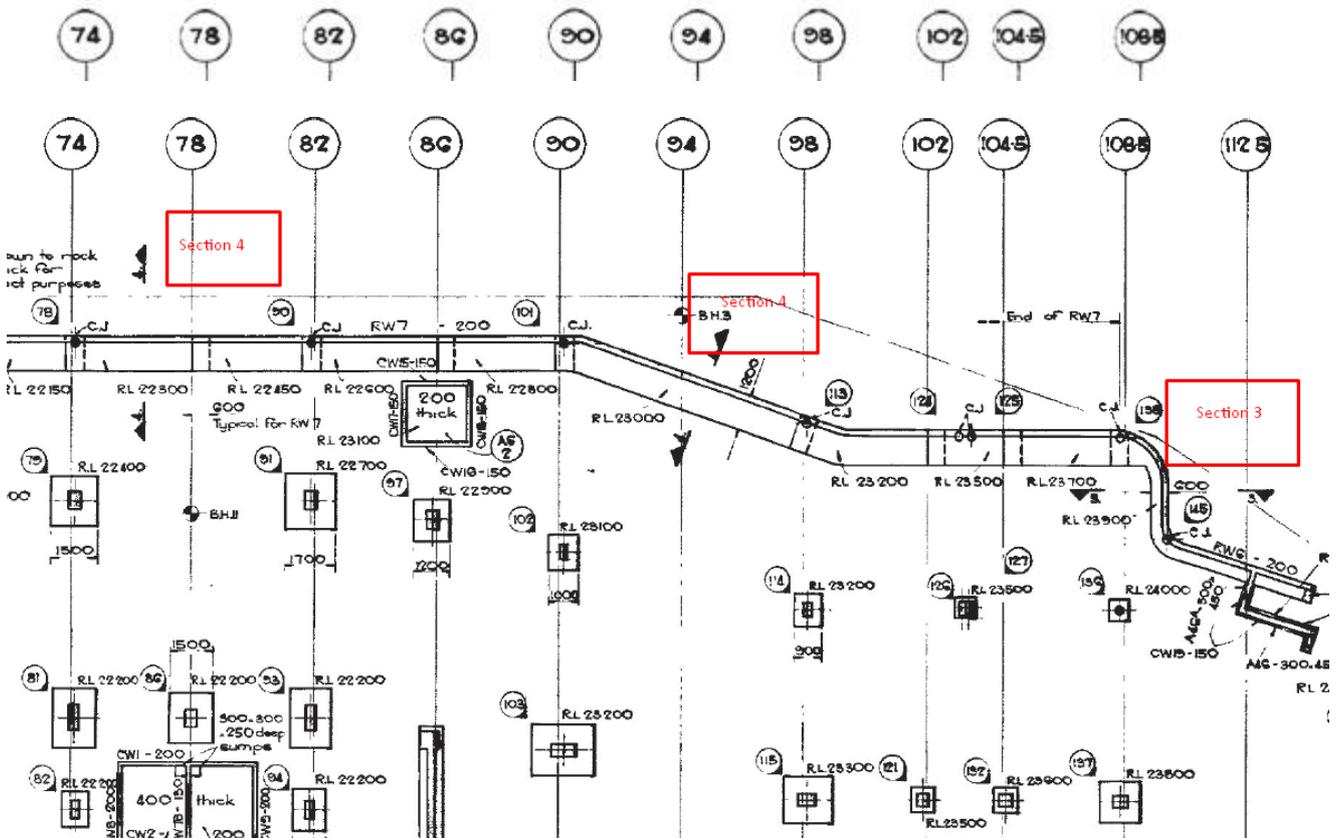


Typical Wall section North of Grid 108.5 at Tree 51

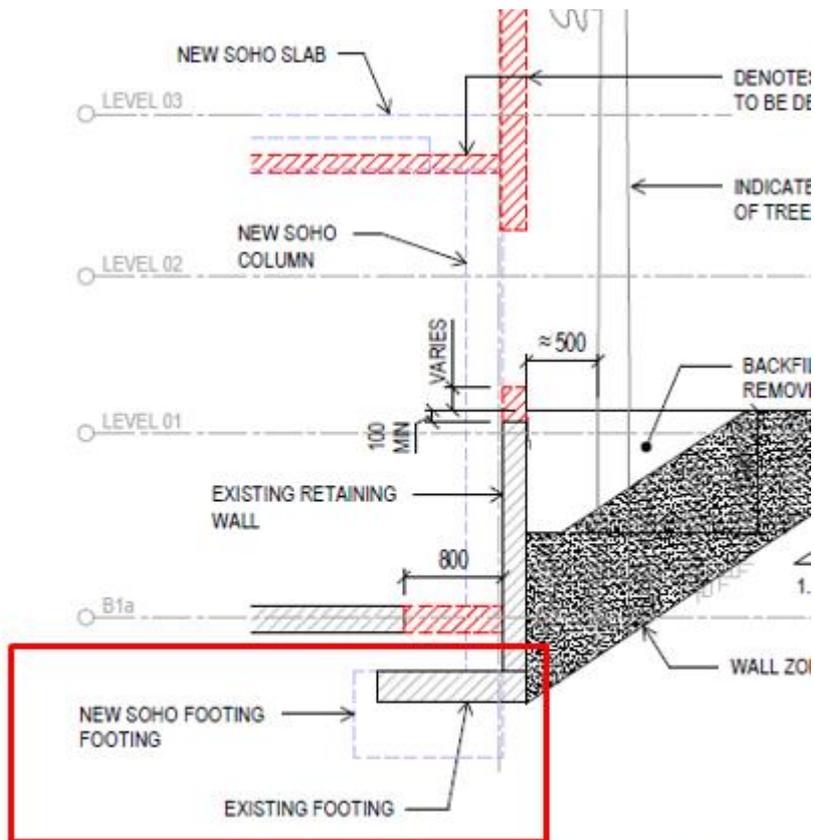
Further as can be seen in the below sketch, pad footings need to be constructed for the future SoHo structure and podium above and these new footings clash with the existing retaining wall footing locations. Therefore, in order to construct the new footing pads the wall footings will need to be demolished, further making the retaining wall unstable.



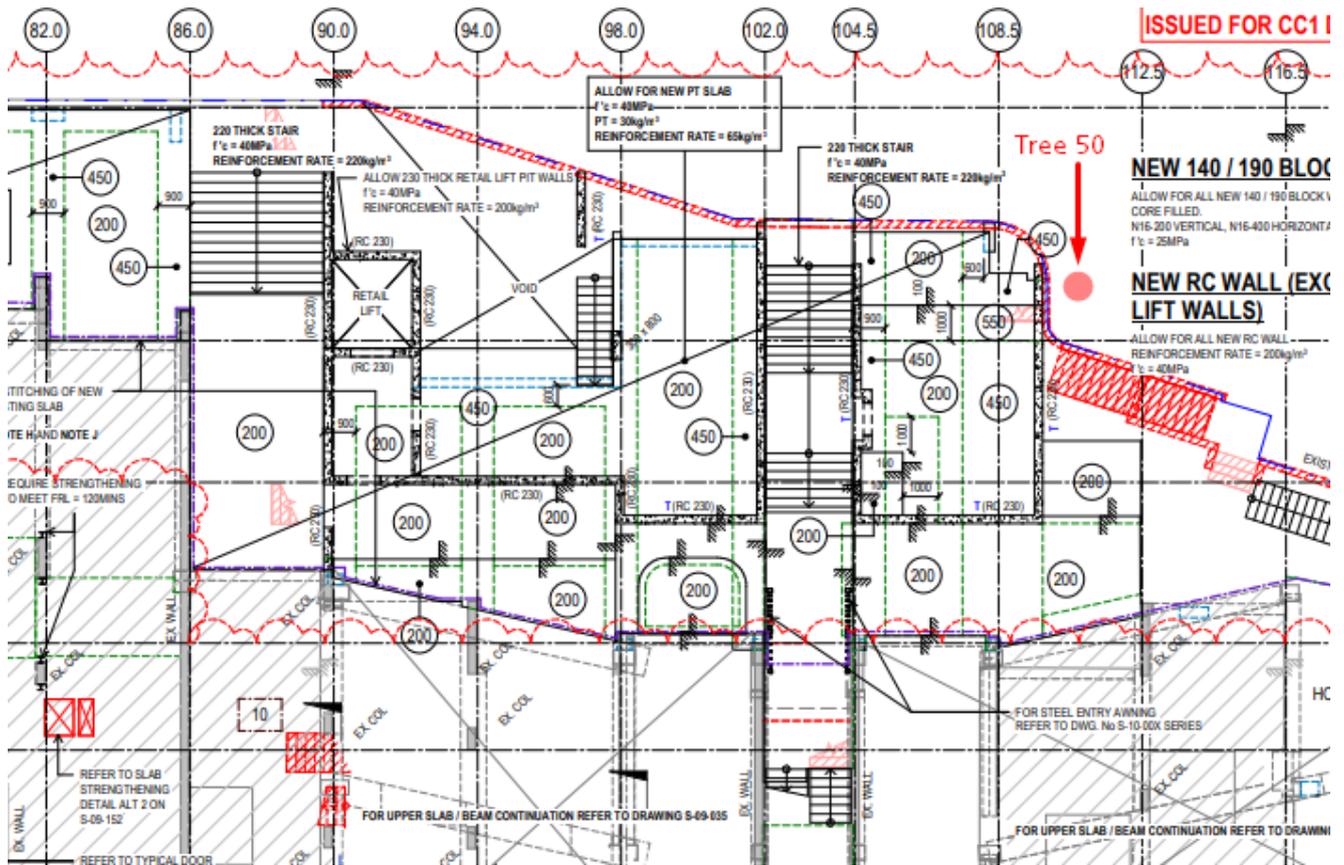
New Works Plan showing new pad footings clashing with existing RW footings.



Existing Footing Plan



TREE - T51
SCALE 1 : 50



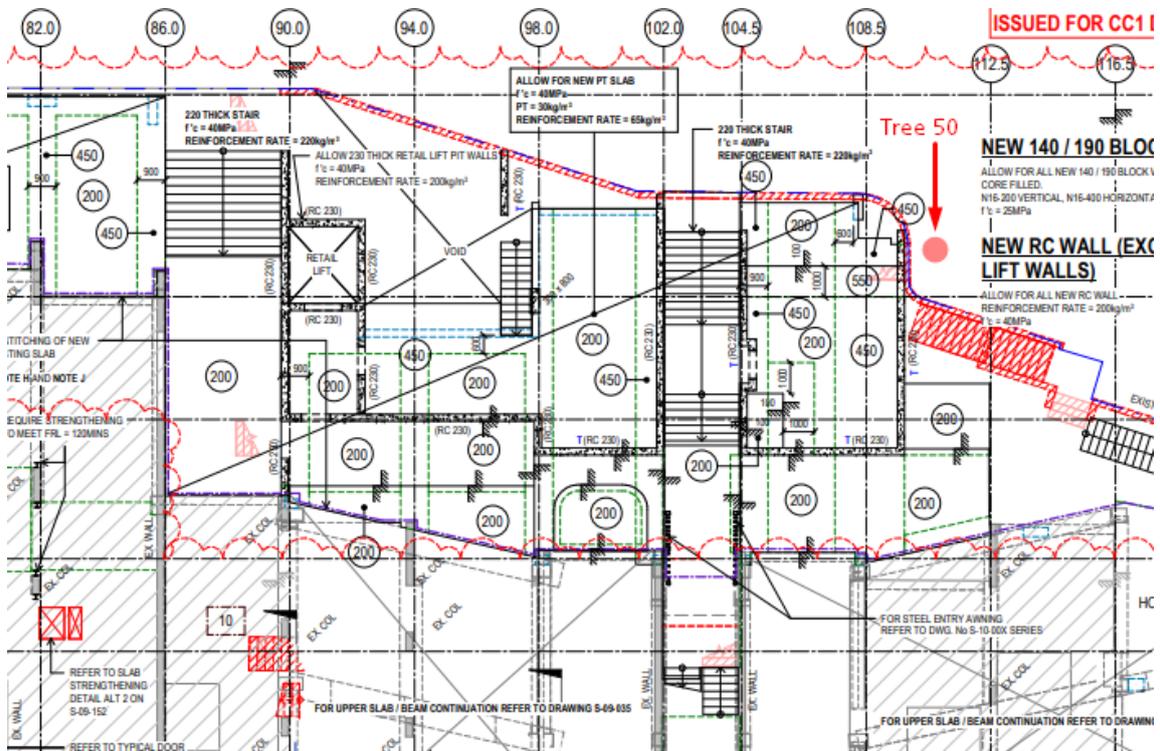
Tree 50 Updated Podium design showing vertical support structure under clashing with the existing Section 3 Retaining Wall.

To upgrade the building to meet current standards and good building practice (waterproofing, stability etc), which is required in order to structurally certify the completed project, the retaining walls will require removal and re-construction which will impact on the stability of tree 50 and 51.

We also note the DA approved works includes new buildings (SOHO Lots) along Gloucester Walk in the vicinity of Tree 50 and 51. These new structures require support columns with pad footings. The construction of the new columns and pad footings require local demolition of the existing retaining wall footings rendering the walls unstable during the works. In order for SCP to certify the structure as stable during construction, removal of the retained earth behind the existing retaining wall is required until the SOHO pad footings and columns are constructed.

We note temporary propping bearing onto the basement slab cannot be provided to the wall during the works as the basement slab is not bearing on the retaining wall footing (see Section 4-4 above).

With the required removal of the backfill at the tree locations and wall re-construction, the trees would be unstable. Refer to the Arborist report.



Tree 50 Updated Podium design showing vertical support structure under clashing with the existing Section 3 Retaining Wall.

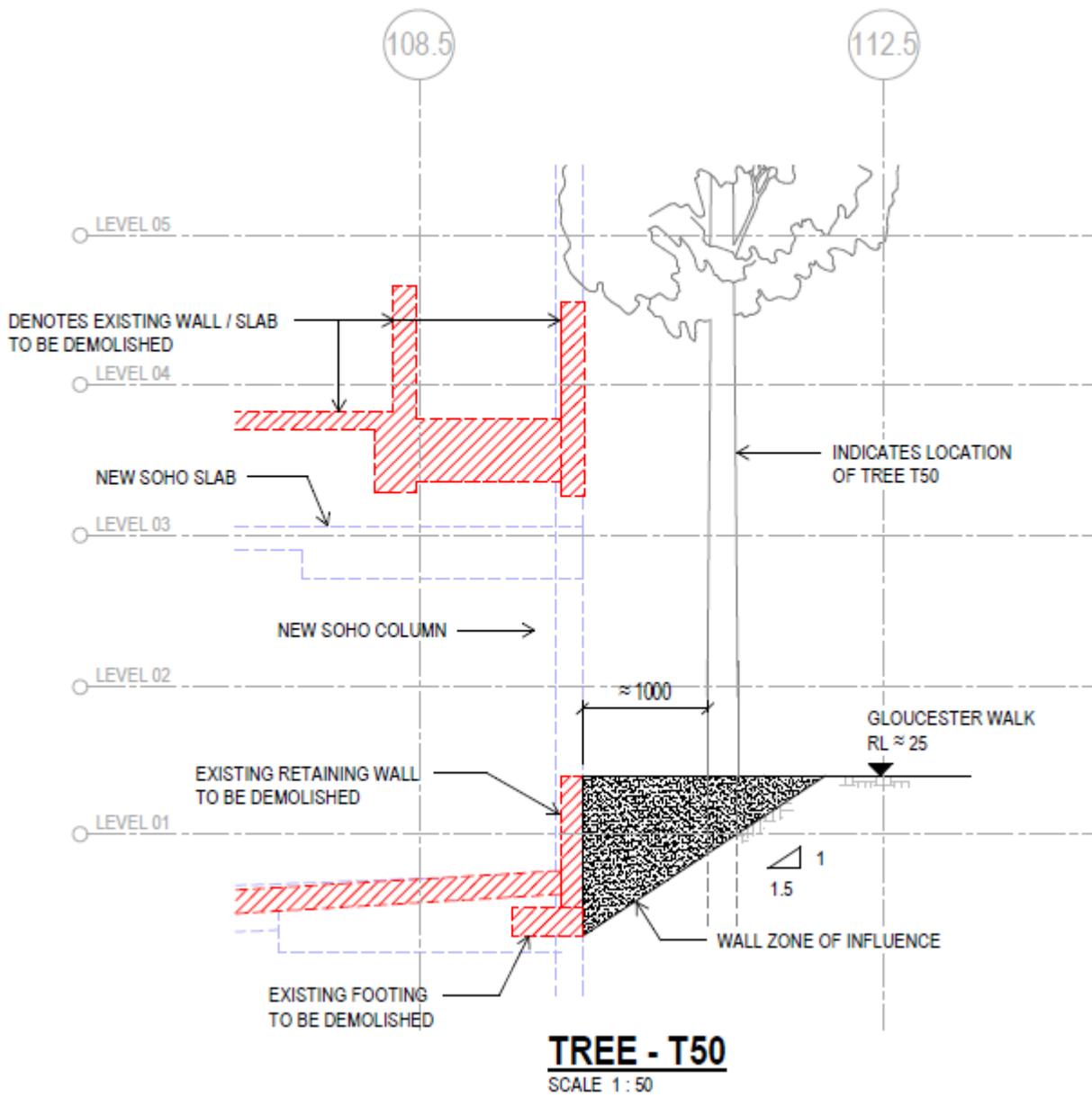
Refer to Appendix A for detailed sketches.

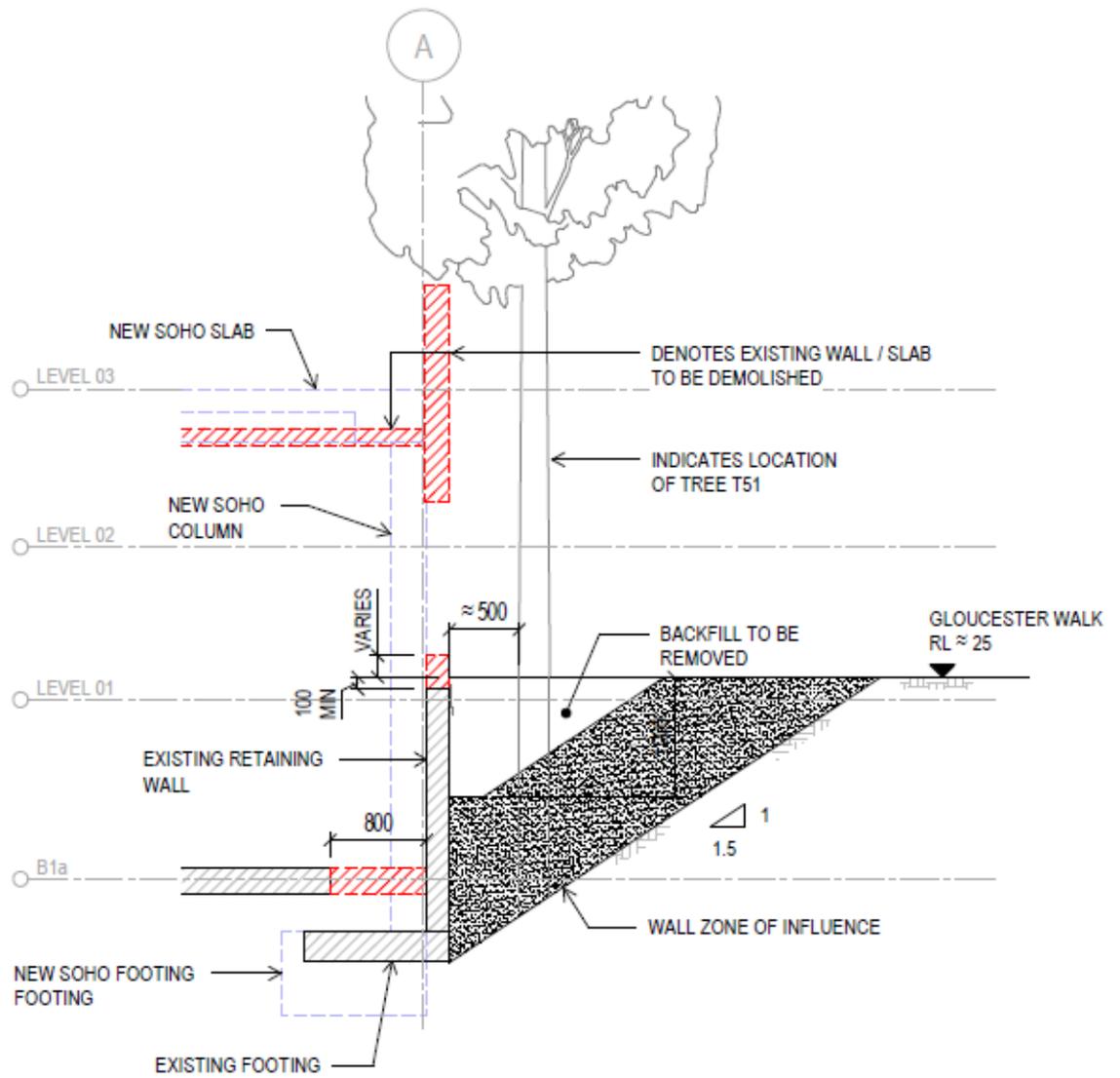
For the reasons of structural non-compliance of the existing retaining wall; localized demolition required to construct the new approved SoHo and podium structure along Gloucester Walk and the existing and on-going damage to the existing retaining walls caused by Tree 50 and 51 the existing retaining wall is required to be demolished and rebuilt to the current standards. To ensure safety and as a result of the required demolition of the existing retaining wall including the removal of soil behind trees 50 and 51; both trees will become unstable as noted in the Arborist report.

Yours faithfully
 SCP Consulting Pty Ltd

Paul Siewert
 Director

APPENDIX A





TREE - T51
SCALE 1 : 50