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Title

Tree Management Plan & Tree Protection Measures

Site Address:

AustralianWarMemorial (AWM), (Block3Section39)Campbell,ACT,

Prepared for: Rohan BurnsideKnight Frank AustraliaLevel 4/64 Allara StCanberraACT2600 Rohan.Burnside@au.knightfrank.com

Date: 4th March 2021

JOB NO: 7753 Rev B

Tree Assessment

Canopy Group were engaged by Knight Frank to prepare a Tree Management Plan of the trees that are within the hoardings and construction site for the proposed redevelopment of the AWM. The Tree Management Plan (TMP) is to conform to the requirements of AS4970-2009 Protection of trees on development sites

In January and February of 2021 Canopy Group assessed the trees on the above-mentioned site (refer to Tree Location Plan) it was a visual assessment at ground level only. No invasive diagnostic measures were used. Photos were taken. The findings of the tree assessment are as per Canopy Groups Preliminary Arboricultural Report (PAR) Ref: 6431 24th of February 2021.

This tree management plan refers to the trees outlined in the following Tree Schedulethe Tree location plan indicates trees to be removed and trees to be retained.

Most of the trees assessed for this assessment have already been marked to be removed, these trees are identified on the tree location plan with red outline.

Trees that are to remain and require protection during the redevelopment are highlighted in green. (refer to tree location plan). None of the trees were identified as "Registered" The trees remaining within the hoardings were all "High to Exceptional" Quality trees. Most of which are unlikely to affected by the Development. Trees 194 to 197 to the South East of the AWM.

Tre e No.	Species	Height	Canopy Spread			Health	Structu re	Ag e	Tree Protection Status	Tree Quality Classification	Arboricultural Impact	Comments	Circumferenc e ⁴⁹⁷⁰	DBH	Radius TPZ ⁴⁹⁷⁰	D10 TPZ	Radius SRZ ⁴⁹⁷⁰	
			N	E	S	W												
152	Eucalyptus bicostata - Blue Gum	8	1:0 5	1;5	1:05	1:0 5	Good	Good	EM	Park Tree	Medium	Tree to be maintained and protected	Memorial tree not affected by development is a juvenile tree	1.20	0.38216 6	4.6	3.1	2.4
189	Eucalyptus bicostata - Blue Gum	15	5	5	5	5	Good	Good	EM	Park Tree	Medium	Unlikely to be affected by development	Currently located behind construction fencing	1.80	0.57324 8	6.9	4.6	2.8
190	Eucalyptus bicostata - Blue Gum	15	5	5	5	5	Good	Good	EM	Park Tree	Medium	Unlikely to be affected by development	Currently located behind construction fencing	1.50	0.47770 7	5.7	3.8	2.6
191	Eucalyptus bicostata - Blue Gum	15	5	5	5	5	Good	Good	EM	Park Tree	Medium	Unlikely to be affected by development	Currently located behind construction fencing	1.50	0.47770 7	5.7	3.8	
192	Quercus sp.	16	7	7	7	7	Good	Good	V	Park Tree	Exceptional	Unlikely to be affected by development		1.80	0.57324 8	6.9	4.6	
193	Populous deltoides - Cottonwood	16	6	6	6	6	Good	Good	V	Park Tree	High	Unlikely to be affected by development		3.00	0.95541 4	11.5	7.7	
194	Quercus robur - English Oak	16	11	10	10	9	Very Good	Good	V	Park Tree	Exceptional	Adjacent to hoardings possibly -canopy conflict, surface protection required. Prohibited Activities with TPZ	Tree Management Plan Required	2.90	0.92356 7	11.1	7.4	3.5
195	Quercus robur - English Oak	16	10	10	11	11	Very Good	Good	V	Park Tree	Exceptional	Adjacent to hoardings possibly -canopy conflict, surface protection required. Prohibited Activities with TPZ	Tree Management Plan required	3.20	1.01910 8	12.2	8.2	3.6
196	Quercus robur - English Oak	16	9	9	9	10	Very Good	Good	V	Park Tree	Exceptional	Adjacent to hoardings possibly -canopy conflict, surface protection required. Prohibited Activities with TPZ	Tree Management Plan required	2.90	0.92356 7	11.1	7.4	3.5
197	Quercus robur - English Oak	16	12	14	10	10	Very Good	Good	V	Park Tree	Exceptional	Adjacent to hoardings possibly -canopy conflict, surface protection required. Prohibited Activities with TPZ	Tree Management Plan required	3.20	1.01910 8	12.2	8.2	3.6
198	Quercus robur - English Oak	16	13	12	12	13	Very Good	Good	V	Park Tree	Exceptional	Unlikely to be affected by development		3.60	1.14649 7	13.8	9.2	3.8

Tre e No.	Species	Height		Canop	oy Sprea	ld	Health	Structu re	Ag e	Tree Protection Status	Tree Quality Classification	Arboricultural Impact	Comments	Circumferenc e ⁴⁹⁷⁰	DBH	Radius TPZ ⁴⁹⁷⁰	D10 TPZ	Radius SRZ ⁴⁹⁷⁰
199	Quercus robur - English Oak	16	13	13	12	13	Very Good	Good	V	Park Tree	Exceptional	Unlikely to be affected by development		3.60	1.14649 7	13.8	9.2	3.8
200	Platanus x acerifolia - London Plane Tree	17	7	7	7	7	Very Good	Good	V	Park Tree	Exceptional	Unlikely to be affected by development		2.10	0.66879	8.0	5.4	3.0
201	Platanus x acerifolia - London Plane Tree	17	7	7	7	7	Very Good	Good	V	Park Tree	Exceptional	Unlikely to be affected by development		3.00	0.95541 4	11.5	7.7	3.5

Tree Location Plan (as per the Preliminary Arboricultural Report)





Refer to the details in the Tree Management Plan and Tree For trees that are to remain, please refer to Appendix 1 for the accompanying Tree Protection Measures.



Tree Management Plan for Tree 152 – Eucalyptus bicostata - Blue Gum Memorial to be read in conjunction with the tree protection measures in Appendix 2.

Represents the Tree Protection Zone (TPZ) radius from centre of tree as per the AS 4970 Protection of Trees on Development Sites.

Represents Tree Protection Fencing. Prohibited Activities and Root Protection Measures apply within the fenced section of the TPZ. Refer to Tree Protection Measures for details.

Represents "Special Conditions Apply" for excavation, construction, landscaping, and services installation within the TPZ of these trees.

Prohibited Activities and root protection measures still apply within the TPZ and the existing paved section of this tree. Refer tree protection measures in Appendix 1.



Tree Management Plan for Tree 189 to 191 – Eucalyptus bicostata - Blue Gum *to be read in conjunction with the tree protection measures in Appendix 2.*

Represents the Tree Protection Zone (TPZ) radius from centre of tree as per the AS 4970 Protection of Trees on Development Sites.

Represents Tree Protection Fencing. Prohibited Activities and Root Protection Measures apply within the fenced section of the TPZ. Refer to Tree Protection Measures for

Tree protection signage as illustrated to

Tree 189,190 and 191 are unlikely to be affected by the development. Tree protection fencing and signage is required prior to commencement and Prohibited Activities and root protection measures still apply within the fenced section of these trees. Refer tree protection measures in Appendix 1.



Tree Management Plan for Tree 194,195,196 and 197 – Quercus robur to be read in conjunction with the tree protection measures in Appendix 2.



Tree Management Plan for Tree 198 to 201 – Quercus robur and Platanus x acerifolia *to be read in conjunction with the tree protection measures in Appendix 2.*

Represents the Tree Protection Zone (TPZ) radius from centre of tree as per the AS 4970 Protection of Trees on Development Sites.

Represents Tree Protection Fencing. Prohibited Activities and Root Protection Measures apply within the fenced section of the TPZ. Refer to Tree Protection Measures for details.

Tree protection signage as illustrated to follow

Tree 198 to 201 These trees are surrounded by pavement that is remaining, these trees are unlikely to be affected by the proposed development. The Tree protection fencing represents the TPZ of these trees. Fencing and signage is to be installed prior to commencement and Prohibited Activities and Root Protection Measures still apply within TPZ of these trees. Refer tree protection measures in Appendix 1.



Tree Management Plan for Tree 198 to 201 – Quercus sp. and Populous deltoides - Cottonwood to be read in conjunction with the tree protection measures in Appendix 2.

Represents the Tree Protection Zone (TPZ) radius from centre of tree as per the AS 4970 Protection of Trees on Development Sites.

Represents Tree Protection Fencing. Prohibited Activities and Root Protection Measures apply within the fenced section of the TPZ. Refer to Tree Protection Measures for details.

Tree protection signage as illustrated to follow

Appendix 1

Tree Protection Measures (TPM)

Approval

No demolition, excavation or construction work is to commence on this site until this Tree Management Plan has been approved by the National Capital Authority (NCA)

A colour, A3 size copy of the final version of all sheets of this Tree Management Plan is to be available to all workers on the site during the period of demolition, excavation, construction and landscaping.

Induction

All persons, engaged in excavation, demolition or construction on this site, are to receive an induction, which informs them of their responsibilities regarding protection of the regulated trees, prior to their commencement to work on the site.

Tree Protection Zones

The Tree Protection Zone (TPZ) for the park trees in this tree Management plan (The plan)is a circle centred on its trunk and of radius as depicted on the TMP. This is the root protection portion of the Tree Protection Zone as designated by the Australian Standard AS4970-2009 'Protection of trees on development sites. It is shown outlined by green circle on the drawing.

D10= AS 4970- 2009 Protection of Trees on Development Sites permits a 10% allowable incursion into the TPZ (with conditions) The D10 is the distance from the trunk to a straight-line excavation past the tree that would excise 10% of the TPZ.

Where greater than a 10% incursion into the TPZis necessary for construction additional Tree Protection Measures apply.

Monitoring

The project manager is to seek the advice of an AQF Level 5 arborist if any of the regulated trees appears to be in decline, or has thinning canopy, large branch failures, insect infestation or accidental mechanical damage, or if concerns are raised about the trees' health or viability.

Compliance

Once this Tree Management Plan has been approved, failure to comply with the measures outlined, may incur an on the spot fines

Alterations and Additions

Once this Tree Management Plan has been approved, any alterations or additions to it, are to be formulated by an AQF level 5 arborist and approved by NCA

1.Fences

Install Tree Protection Fences for the Park Treeswhere indicated on the plan. Verge protection fences are to be a 1.8m high chain mesh on steel posts that are driven into the soil. All fences are to be:

- a. installed prior to commencement of demolition, excavation and construction for this project and
- **b.** maintained in good order until construction is complete.And;
- **c.** The boundary fences will suffice where they correspond with the TPZ fences. And:
- **d.** The fences may be removed at the end of the construction work for the installation of the landscape, however,
- e. Prohibited Activities and Root Protection clauses still apply.

2.Demolition

Demolition is not to commence until the Tree Protection Fences and signs are in place.

3.Signage

Signs, as depicted on to follow, are to be installed as indicated on the drawing, prior to work commencing on site.

4.Mulch

If required, install mulch to a depth of 75mm of wood chip and fines equivalent to 'Forest litter' prior to work commencing on this site.

5. Surface Protection

If access is required within the TPZ of any protectedtree then surface protection shall be installed.

The Surface Protected Area is to be protected with Load Sharing Surfaces installed for the period of demolition and construction. Installation as follows:

For loads less than 3 tonnes:

- **a.** Spread 75-100mm wood chip over the area to be protected.
- **b.** Lay mats (Alturnamats or Trakmats or equivalent) edge to edge over area specified in the Tree Management Plan;
- c. Alternatively 25mm thick plywood may be used in place of Mats Where loads traffic is restricted to pedestrian traffic only,
- d. Connect mats withjoining links as pictured.
- e. Pin the mats into place to prevent movement.

For loads of **3.0 - 6.0 tonne**:

- **a.** Spread 75-100mm wood chip underneath
- **b.** Lay rumble boards of 120 x 65mm hardwood across the area to be protected.
- c. Lay protective mats (Alturnamats or Trakmats or equivalent) edge to edge as shown in the Tree Management Plan.
- **d.** Connect the mats together with joining links.
- e. Pin the mats into place to prevent movement.

condition.

Alternatively -Where scaffold is used adjacent to a protected tree, the load sharing surface can be replaced by a floor inserted at the base of the scaffold, at up to 500mm above the ground to prevent pedestrians and loads directly on the ground surface.





Image 2 - Ground protection



hold in place.

The installation is to be checked regularly and maintained in good

Image 1. Ground protection (for up to 3 tonne) includes 75mm of wood chip with mats over the

Image 3 - Ground protection with joining links to

If access is required within the TPZ or fenced section any protected trees then trunk guard is to be installed prior to commencement of work on site,



• Install Tree Guard equivalent to is Arborist Network Trunk Guard (as picture) contact (02)98351234

• The trunk guard is to have soft padding (equivalent to polystyrene) on the underside (trunk/bark side) of plywood. (as pictured)

• The lengths of the trunk guard is to be at least 1.5m long

• The bottom of the guard is to be level with natural ground level.

• The gaps between strips of are not to exceed 20mm

• Use metal strips are to hold guard in place.

> • Hammering of

screws or nails is to be avoided

6.Prohibited Activities

The following activities are prohibited within the TPZof Protected trees during the period of demolition, excavation and construction:

- a. Entry onto or across unprotected surfaces.
- b. Excavation for any purpose including service installation, except as allowed elsewhere in this Tree Management Plan;
- c. Erection of site sheds or structures.
- d. Changes in ground surface level: no scalping or fill except as detailed above.
- e. Movement or parking of vehicles or machinery;
- Storage of building materials or soil fill; f.
- g. Cleaning or washing of equipment.
- h. Spillage or disposal of materials or waste.

7.Root Protection

If any roots a regulated tree are likely to be cut within the TPZ by any excavation. then:

- a. Excavation is to be carried out in a manner that will prevent tearing, shattering, splitting and displacement of the remaining roots of the tree;
- b. The final trimming of the roots still attached to the tree is to be by clean cuts carried out with sharp hand tools within 2 hours of the roots initially being cut;

- c. The faces of the excavations on the tree side of the excavations, within the RPZ are to be kept moist until any back-filling is completed (Draping the faces with a thick textile which is kept moist with micro sprays is the recommended method).
- d. Back-filling is to be carried out as soon as possible.

8.Pruning

No pruning of, or branch removal from the protected trees is permitted without consulting an AQF level 5 arborist about the need for pruning. Approval from NCA for all Park Trees or Street trees

9. Canopy Protection

If any conflict with the canopies of the protected trees is likely to occur, then:

- a. preferably procedures are to be modified to avoid damage to branches, or;
- **b.** an AQF level 5 arborist is to be consulted about the need for pruning. This may result in the need for;
- **c.** further application for Tree Damaging Activity.

10. Tree Removals

All tree removals are subject to NCA approval. Trees that are required to be removed are as per the tree removal plan by Knight Frank. Or as indicated as red circles on the tree location plan above.

11.Scaffold

If scaffold is to be erected adjacent to any of the protected trees then, no branches are to be cut, broken or removed; they are to be excluded from the space within the scaffold by either: Having an arborist (AQF level 3) tie them back;Or gently pushing them back and erecting a screen to prevent them entering the space

12. Special Design Conditions

- 1. Services Connections within the TPZ of Trees There is to be No excavation for service connections, such as lines for water, gas, electricity, sewer and storm water, is to be carried out within the TPZ, except as follows.
 - a) For the installation of underground services that are unavoidably to be connected to mains within the TPZ:
 - b) A target excavation is to be made where the connection or tie to the main is to be located. The target excavation is to be: Either dug by hand or hydro excavation, and;Of the minimum cross-sectional area possible. No roots of greater than 30mm diameter are to be cut or damaged, (Note that normal operation of hydro-excavation usually damages root by blowing off the bark: the operation must be modified by use of a fan jet at low pressure);

d) Boring from outside the TPZto the target excavation and, Boring at least 600mm below existing ground level.

2. Landscaping

The Tree Protection Fences may be removed at the end of the construction work for the installation of the landscape however Prohibited Activities (b-h) and Root Protection clauses still apply:

Excavation for new hardscape (paths) should not exceed 100mm within the TPZ of a protected tree. All hardscape should be designed to float over existing ground level where within the TPZ of a protected tree.

IF fill is required to provide a level surface it should be single grade gravel with no fines.

Roots so exposed during any excavation for construction then Root Protection Measures apply.

30mm diameter

- - arborist.

c) The installation of the new line is to be by directional boring,

Planting within the TPZ is to be carried out without damage to roots >

3. Hoardings and Compound Installation within the TPZ of a protected tree there is to be:

a) No installation of hoarding with the TPZ of a protected tree. And:

b) <u>Canopy Protection Measure (9)applies</u> to any branches that may be in conflict with adjacent hoardings.

c) There are to be no branch removals of any trees for the installation of the hoardings without NCA approval.

d) If any branches are to be removed (subject to approval) then they it is to be done by an AQF level 3 gualified

e) There is to be no excavation for the installation of hoardings within the TPZ of a protected tree.

f) There is to machine or pedestrian entry into the TPZ of a protected tree for the installation of Hoardings.

g) All Prohibited Activities (9) still apply.

h) If entry into the TPZ for the hoardings is unavoidable then surface protection (5) is required

BULDING KON THIS SITE IS WITHIN DEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDE	AS PER THE as 4970 PROTECTION OF TREES ON DEVELOPMENT SITES. ALL PERSONNEL <u>MUST</u> FAMILIARISE THEMSELVES WITH THE TREE MANAGEMENT DIAN	AS PREPARED BY CANOPY TREE EXPERTS. BEFORE COMMENCING WORK ON THIS SITE AND MUST COMPLY WITH ALL TREE PROTECTION MEASURES FAILURE TO OBSERVE THESE REQUIREMENTS MAY INCUR FINES OR PROSECUTION BY NATIONAL CAPITAL AUTHORITY FOR FURTHER INFORMATION CONTACT: CANOPY TREE EXPERTS 6161 1800 trees@canopygroup.com.au
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